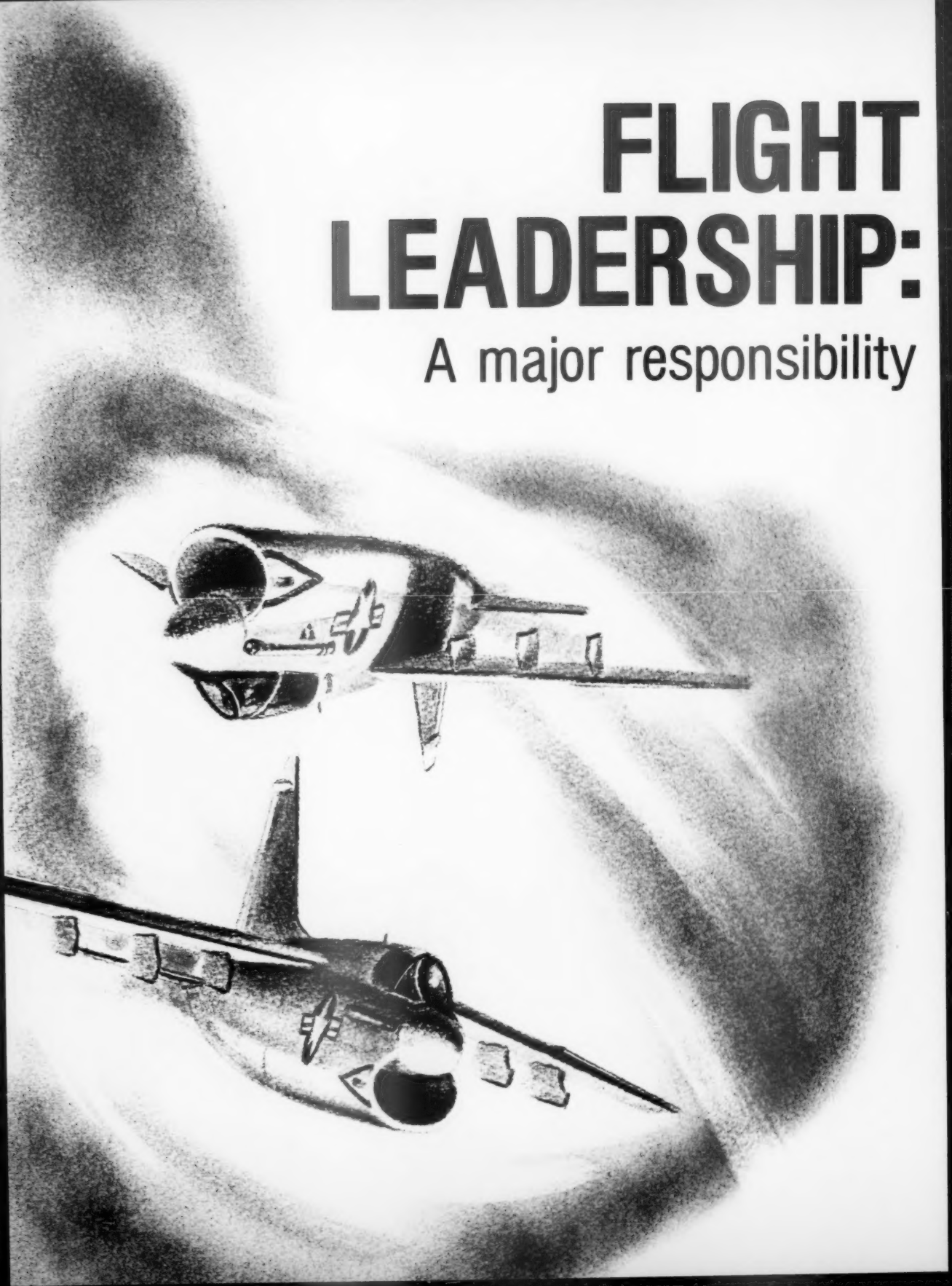
approach

FEBRUARY 1978 THE NAVAL AVIATION SAFETY REVIEW

FLIGHT LEADERSHIP:

A major responsibility



THE flight leader of a section or division of tactical jets has one of the most demanding positions in naval aviation. P-3s, C-9s, E-2s, helicopters – in fact, all aircraft with two (or more) pilots aboard – have a thorough and extensive training and qualification program that prepares nugget aviators for aircraft commander responsibilities. In single-piloted aircraft, however, the nugget aviator is the pilot in command the day he leaves the formal training environment. Since there is still a great deal for him to learn, much of the training and supervision of the junior aviator lies with the formation leader. Since the flight leader is obviously not in the same cockpit as those he is expected to supervise and train, the demands and responsibilities placed on him are heavy. Unfortunately, accidents over the years have indicated that many flight leaders have not been deserving of this responsibility. For example, consider a flight which took place several years ago.

Three A-4s launched on a bombing mission to a local range. Even though the weather was marginal, the flight leader neglected to get a weather brief. He had flown earlier in the day and was relying on his earlier observations to judge the weather as satisfactory.

The weather started deteriorating shortly after takeoff, but the flight pressed on at about 600 feet AGL. As it became increasingly difficult to maintain VMC, the flight leader decided to abandon his attempts to reach the target and notified his nugget wingmen to stand by for a 180-degree turn for return to base. During the turn, the flight leader descended to 100 feet AGL either as a result of disorientation or in an attempt to maintain VMC. Both wingmen were hanging on tightly, trying to keep sight of the lead in the reduced visibility. In the course of the turn, the leader brushed through the tops of some trees. His aircraft made it out, but both his wingmen crashed into the terrain and were killed.

This is perhaps the extreme consequence of poor flight leadership. While all examples of poor flight leader technique or headwork don't end up in disasters, the flight leader must always be aware of the responsibility he has – expensive aircraft and priceless human lives.

What makes a good flight leader? A list of characteristics of the good flight leader would probably vary somewhat according to the individual queried. However, there are some generally accepted traits that have been identified over the years – as manifested in accidents where the flight leader *didn't* have them.

Knowledge of aircraft systems and emergency procedures. The flight leader has to know the aircraft he's flying and its emergency procedures cold. He is often called upon to analyze and advise upon wingmen's aircraft malfunctions and then make a decision concerning continuation of the flight or alternative action. If there is any confusion or doubt in the leader's mind about procedures, he is probably not going to be much help to the others in his flight. Consider the following mishaps where the flight leader failed to provide much assistance.

- Two single-seat A-4s were descending to pick up the low-level segment of their navigation flight. The flight leader was flying as the chase pilot. As the aircraft started down, the navigation leader noticed his control stick moving erratically in all quadrants. The nose started to pitch up although the trim was holding steady. The confused pilot used his rudders to get the nose down and prevent stalling, but in the process the *Skyhawk* went nose-low and accelerated. The pilot, being buffeted around the cockpit and heading down in an extreme nose-low attitude, broadcast his intention to disconnect the hydraulic flight controls. The flight leader answered "Go ahead."

Disconnecting the flight controls at this point ordained the accident. With no hydraulic boost, the pilot could not pull out at the airspeed he was going and had to eject. The malfunction lay with the AFCS, and the proper NATOPS procedure was to deploy the RAT. The mishap pilot erred in not knowing the procedure, but he was transitioning from another community and had limited time in the A-4. The flight leader, charged with safe conduct of the flight, was no help when he was needed most.

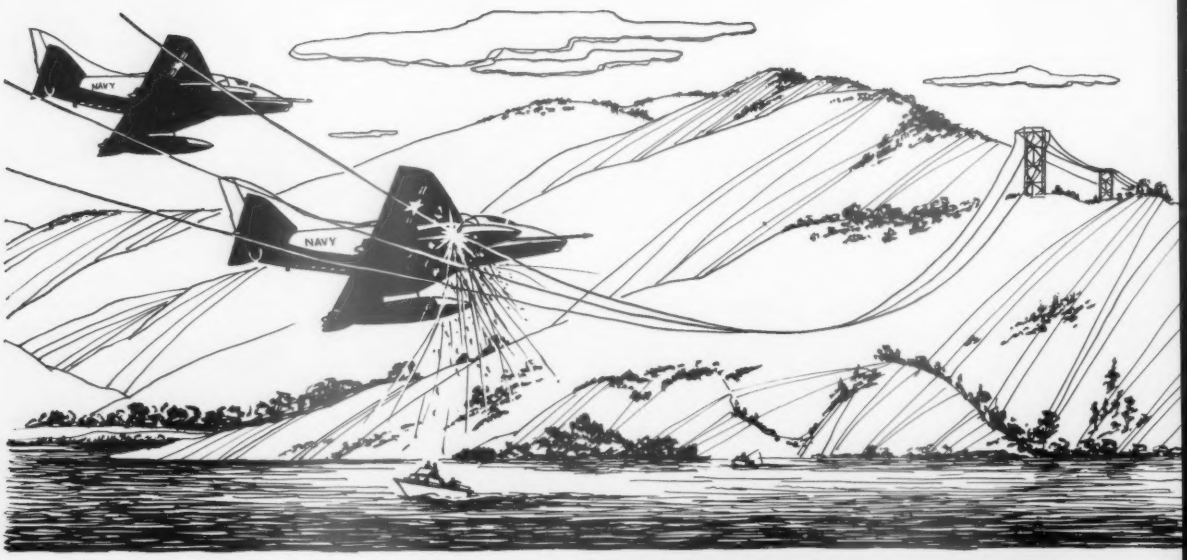
- An A-7 experienced a total electrical failure following catapult launch. The Emergency Power Package was also inoperative. The flight leader elected to leave the emergency aircraft overhead the ship while the rest of the flight continued its mission. About 50 minutes after launch, the *Corsair* flamed out due to fuel exhaustion. Normal fuel transfer sequencing was interrupted by the complete electrical failure. The flight leader's decision to treat the emergency as minor and deferrable contributed to the loss of the aircraft.

Flight discipline. Maintaining flight discipline is essential for a multiplane formation to operate safely and effectively. It is also critical that the flight leader demonstrate air discipline because he is setting an example that will be emulated by junior wingmen in his flight. The flight leader who displays poor air discipline or who tolerates it within his flight is being remiss in his responsibilities.

Consider these cases.

- Two A-6s entered a low-level route with the flight leader navigating the route. During entry into the low-level route, lead lost sight of his wingman who was supposed to be performing as the safety/chase pilot. He made no attempt to regain visual contact but instead inquired if chase still had him in sight. He accepted a slightly garbled reply as being an affirmative.

The leader became engrossed in the navigation problem

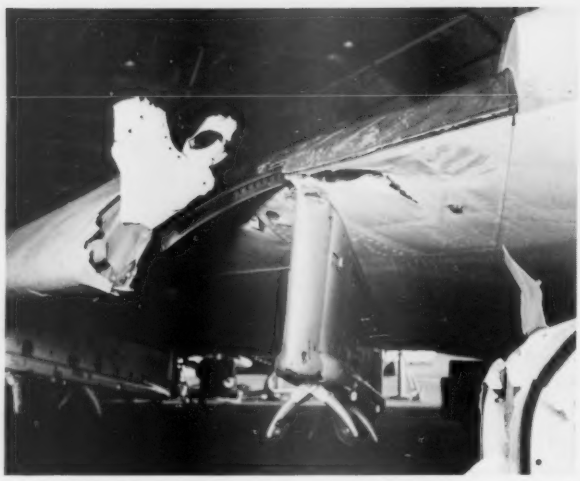


on the low-level route. Witnesses in a town near the route stated that they observed an aircraft – the chase – rolling and looping at altitudes estimated to be from 10,000 feet (5000 feet AGL) to the deck. When the flight leader had not seen the wingie for 5-7 minutes and could not reach him on the radio, he made his way back on the route until he found the site of smoke and flames. The *Intruder* had impacted the ground in a near-vertical attitude with the engines at high RPM. The flight leader's allowing this flathatting not only contributed to the accident, it also endangered the flight leader because he had no safety observer/chase.

- A flight of two A-4s was scheduled for a practice bombing hop at a nearby target range. The flight took off well in advance of the target time and deviated considerably from the route to the target. Approaching a reservoir, the flight descended to 100-200 feet for a high-speed pass over the lake. The flight leader did not notice high-tension powerlines strung over the water, however, and impacted them. He was able to maintain control of the aircraft and return it safely – but it was close. Furthermore, he terrified several boaters in the vicinity and came close to hitting others with debris falling from the aircraft and powerline. This flight was the leader's first as a section leader.

Awareness of wingman limitations. A good flight leader has to know the capabilities of the members of his flight and conduct the hop accordingly. Exceeding a wingman's experience level, ability, or proficiency is a sure way of getting him into trouble.

- A flight leader took out a division of aircraft and commenced unscheduled ACM training. In the process, the leader's wingman followed his adversary into a nose-high zero airspeed regime. The aircraft did a tail slide and entered a nose-low port turn. The pilot diagnosed a spin and put in anti-spin controls which only aggravated the situation. Unable to regain controlled flight, the pilot ejected at 8000 feet.



Low-altitude powerlines and poor flight discipline by the flight leader leads to damaged aircraft and endangered lives.

The accident pilot was placed in a situation far beyond his experience or currency. He had no ACM training in two-plane tactics – let alone four-plane – and he was not well trained in post stall/departure/spin characteristics for the aircraft he was flying. In all probability, the aircraft was not spinning at all, but was in a post stall gyration and would have recovered itself had the pilot acted correctly.

Being aware of wingmen's limitations is particularly critical when the wingmen are in a formal training environment such as the Training Command or the RAG. The flight leader who assumes that these wingmen are operating at his level of competence or at the level of competence of the average Fleet pilot is making a considerable mistake. Allowances have to be made for students. What former Training Command instructor does not remember the challenges of leading student solos on a formation, navigation, or bombing hop!

• A flight of A-4s was inbound to a cross-country base when one of the wingmen experienced a generator failure. He deployed the ram air turbine, and it worked normally, except the pilot could obtain no more than 2 degrees up elevator trim. The flight leader detached the remainder of the flight while he and the emergency aircraft set up for straight-in approaches.

The flight leader was apprised of the emergency aircraft's lack of elevator trim. But instead of breaking out the emergency flip pad or otherwise briefing the situation, the flight leader kept the flight coming, advising the pilot only "to take the gear if it didn't look good." Winds were 10-50 degrees relative at about 10 knots.

The *Skyhawk* touched down 750 feet down the runway at 140 KIAS. Without spoilers and because of the higher landing speed caused by lack of up trim, the pilot was looking at 120 KIAS with 6000 feet remaining. He elected to drop the hook. Shortly thereafter, he changed his mind, raised the hook, and went to MILITARY to commence a go-around. A swerve developed, and the pilot blew a tire trying to realign the aircraft. At 3000 feet remaining, the pilot tried to rotate the aircraft but could not do so (due to the nosedown trim setting). The pilot ejected. The pilotless *Skyhawk* subsequently gathered sufficient flying speed to overcome the nosedown trim setting and became airborne. Shortly thereafter, it fell off on a wing and burst into flame on ground impact.

Here was a case of the flight leader assuming his inexperienced wingman could handle this relatively minor emergency and thus didn't give him much advice or assistance. For instance, he didn't brief procedures for insufficient noseup trim (raise the flaps for landing, land at a higher airspeed). He also neglected to review landing without the main generator – without spoilers. Finally, he didn't discuss the reduced stick authority on a waveoff. The weather was CAVU at the field, and there was ample time to set up the approach properly and discuss all the pertinent factors. It probably would have prevented an accident.

Good judgment. Good judgment is an essential quality for any naval aviator, but it is particularly important for the naval aviator who has other pilots depending on him for the safe conduct of the flight. The following mishaps identify some examples where flight leaders have not displayed good judgment.

• A flight of two F-4s took the runway for a section takeoff. In accordance with the brief – but not with NATOPS – the wingman lined up *abeam* the leader. The flight leader also lined up close to the runway centerline, crowding the other aircraft and resulting in only 5 feet wingtip clearance between aircraft. The crosswind component was 8-11 knots.

The flight rolled. The wingman had trouble maintaining wingtip clearance due to his acute position, and started drifting into the leader. As the aircraft became airborne, lead yawed somewhat from a yaw stab input and the crosswind effect. The wingman – already closing – was unable to prevent the collision despite a last-minute breakaway effort.

The flight leader has to bear a large share of responsibility for this accident. He violated NATOPS by briefing an acute, nonstandard section takeoff position. He then compounded the error by not fully briefing his wingman on what was expected of him on the takeoff roll (slide back into a normal position). Finally, he crowded the wingman rather than taking his half of the runway, setting the stage for a situation the wingman could not handle.

• Two A-7s from a deployed carrier were returning to the ship after a practice bombing hop. The flight leader spotted a foreign freighter and decided to make a low pass in formation. Leveling at 200 feet, 500 KIAS, the section streaked past the freighter and began a 30-degree noseup pullup. Then, without broadcasting his intentions, the leader executed a rapid aileron roll to the right – into the wingman. The wingman was caught unaware, and the two aircraft collided. Both pilots ejected, but the leader was not rescued. This unplanned, unbriefed, and unnecessary maneuver cost two aircraft and one pilot's life – because of poor judgment by the flight lead.

Thorough flight planning. Thorough flight planning is perhaps the most basic function of a flight leader. Included in this is cross-country flying. Yet, the routine and ease of most cross-countries apparently lull some flight leaders into complacency – and this can get them into trouble. The lead of a flight of F-4s found that out vividly not too long ago.

• A flight of four F-4s was returning from an extended opposite-coast deployment. Weather at the fueling stopover

APPROACH is a monthly publication published by Commander, Naval Safety Center, Norfolk, VA 23511. Subscription price: $11.70 per year; $2.95 additional for foreign mailing. Subscription requests should be directed to: Superintendent of Documents, Government Printing Office, Washington, DC 20402. Controlled circulation postage paid at Norfolk, VA.

base and alternate were acceptable during the weather brief. However, midway through the flight, an update with Metro indicated that both destination and alternate were IFR. The lead's fuel planning was based on shooting a VFR approach, and the flight had insufficient fuel to shoot an instrument approach at either destination or alternate! The leader had not planned for this contingency, and now he was in a bind. Four F-4s were running low on fuel and needed a place to land.

The leader decided to return to a civilian field they had just overflown and had spotted through a break in the clouds. Center called the weather 700 variable overcast with 3 miles visibility. Lead decided to penetrate in two sections with a GCA pickup.

Upon contacting Approach Control, however, the weather was updated to 200 obscured, 1/4 mile visibility! Low on fuel and already into the approach, lead elected to continue, although he separated the flight further for individual GCAs.

Lead was vectored to final and then cleared for the *ILS approach.* Lead quickly responded, "Negative, request PAR approach," only to be told that the field was not GCA equipped! Lead continued with an ASR approach, went well below the MDA before sighting the field, and ended up doing a modified wingover to get the *Phantom* on deck.

The other members in the flight were not so fortunate. All three executed missed approaches. Number 2 elected to stay in the pattern and try again while 3 and 4 set out on a bingo for an Air Force base to the east. Number 2 made it aboard the civilian field on his last pass before flameout. Number 4 flew an outstanding bingo profile and landed at the Air Force base with 400 pounds on the counter, zero on the tape, but No. 3 had insufficient fuel to reach the AFB. Rapidly running out of options, No. 3 found a stretch of open highway and landed his supersonic jet on the 50-foot-wide highway, between the powerlines.

Although all four aircraft survived this ordeal with no damage, it's easy to see how all four aircraft could have been lost. With the benefit of hindsight, the Air Force base that No. 4 eventually landed at had good weather and complete military facilities. A divert to this base in lieu of the civilian field would have prevented the entire hairy sequence. But, nav planning, weather briefing, and instant decisionmaking while airborne in tactical jet aircraft are extremely difficult; thus the argument for thorough ground planning and briefing. The flight leader has to know all the fields available to him and have alternate plans of action thought out *before* he straps on that aircraft.

In addition to the above mentioned traits, there are other techniques that separate the good flight leader from the poor. Some examples:

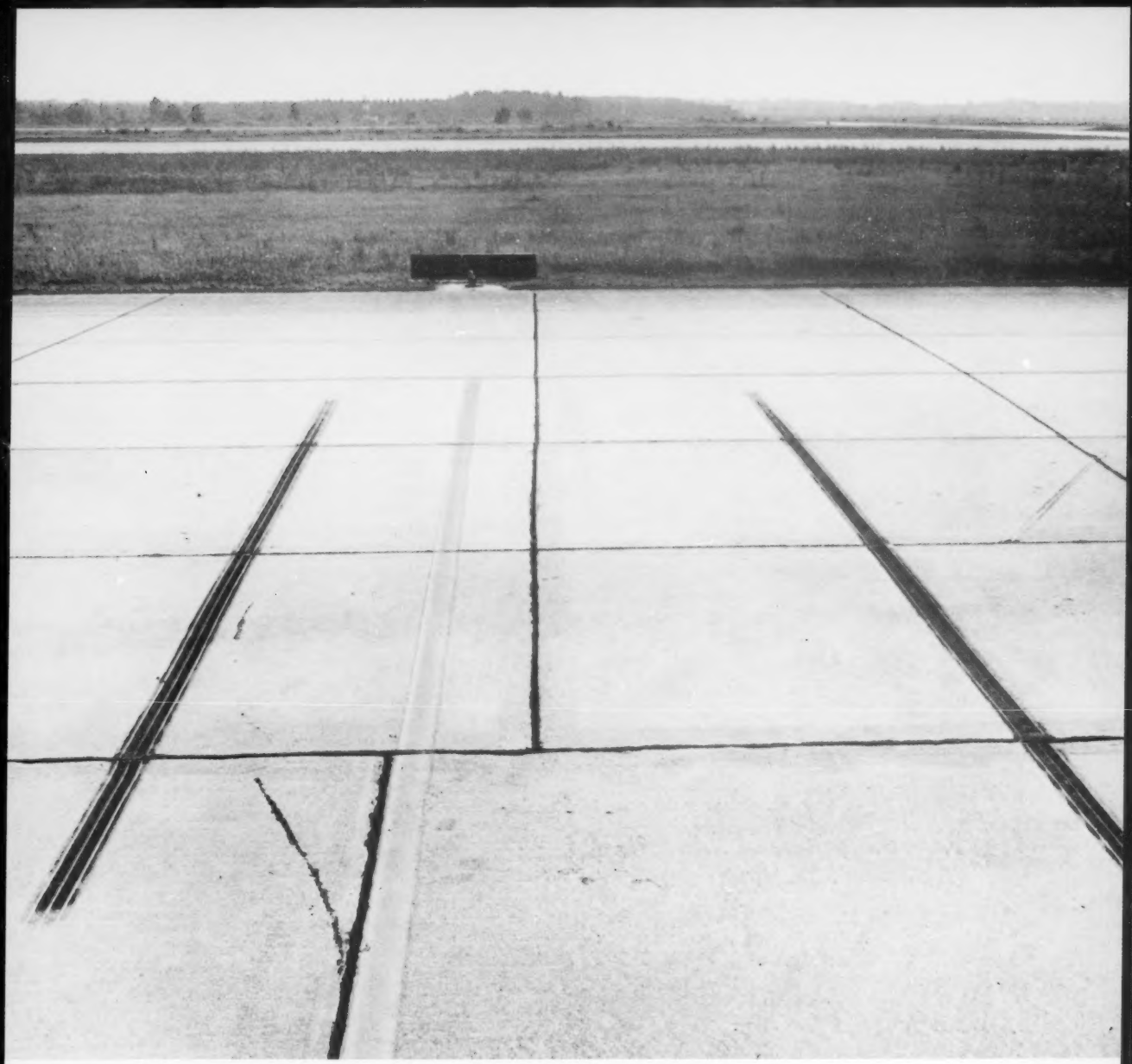
- Smooth basic airwork: Lead's basic airwork can spell the difference for a wingman between a smooth section instrument approach and a white-knuckler caused by massive vertigo.
- Doesn't rush the flight: A leader that rushes his flight is asking for broken habit patterns and glossed-over checklists. There have been several documented cases of pilots taking off with their ejection seat not armed or safety pins left in due to haste to keep up with the lead.
- Positive communication procedures: A good flight leader has a well briefed, definite procedure for radio frequency changes and check-ins. This avoids aircraft getting lost between frequencies at critical moments, and it also gives the flight a more professional appearance. The lead should also brief hand signals for routine and emergency inflight communication.
- Good briefs: A comprehensive and clear brief is the mark of a professional flight leader. Many potentially dangerous situations can be avoided by a thorough discussion of all aspects of the flight.

The number of accidents each year attributable, at least in part, to flight leader supervision should clearly indicate the importance of the position. What, then, does a squadron do to ensure the kind of people that should be flight leaders are in fact leading the flights?

Perhaps the most important factor is to avoid automatic designation of flight leaders based on time in the squadron, total hours, or other arbitrary figures which may or may not be indicative of a pilot's ability to lead a flight. A better approach is to set up formal section leader and division leader qualification standards and selection boards. This approach has been taken in several squadrons. The SEP '75 issue of APPROACH contained an article entitled "Flight Lead Qualification" by VA-155 that described their system. This squadron had a board composed of senior and experienced squadron aviators who evaluated each candidate who was going up for section and division lead. This board did not "rubber stamp" approval, but scrutinized each pilot closely, thereby taking a large step to ensure flight leader proficiency.

In order to reach a position where they can qualify for flight lead, junior aviators need to have a training syllabus that prepares them for this position. Squadrons should have a formal qualification process for section and division leader. This should include total time requirements, hours in model minimums, perhaps exams of some type, and an orderly training sequence. Prospective flight leaders must also get an opportunity to practice leading to ensure they gain the necessary practical training.

Hard lessons learned in broken airplanes and lost lives have consistently demonstrated the need for experienced, able, mature flight leaders. A thorough training and screening process can certainly avoid many of the costly mishaps that have occurred in the past.



All stop, *EMERGENCY!*

By LT William M. Teppig
NAS Cecil Field

WHAT was going through this pilot's mind as he was putting down these two 40-foot skid marks? Was it the difficult decision between north and south? Was he looking for his flight leader? Or was he thinking about last night? Yes, it was nighttime, but both the lights in the direction indicator and the taxiway marker were operating at the time. NATOPS advises not to taxi "faster than a man can trot." Well, unless that man was bionic or Jesse Owens, it's probably safe to say this pilot was not adhering to that procedure. Complacency at Homeplate can do just as much damage as at a strange field. The flight starts and stops in the readyroom – not at the runway.

AIR BREAKS

Too Hot to Handle. There was no intent to fly. The pilot was out on an off-duty runway making high-speed taxi tests. The *Harrier* had a history of gripes on the brake system, and after work had been completed, the AV-8A was taxied out to wring out the system.

Two runs in rapid succession were made followed by normal braking. Anti-skid actuation did not occur because the pilot smoothly applied brake pressure and didn't lock the brakes. On a third run, to specifically check the anti-skid feature, the pilot noted a lack of response from braking action. Further, he felt what he thought was a blown tire.

After the third run, he lowered the nozzles to the braking stop and added power to slow down. When he slowed to about 15 knots, he moved the nozzles fully aft and used his brakes to stop. He called ground control, told the controller he suspected a blown tire and that squadron personnel were on the way to lend assistance.

While waiting for help, the pilot held his position, left the engine running, raised his flaps, and left the nozzles aft. About 15 minutes later, he noted his hydraulic pressure drop from 3000 psi to 1500 psi. He then secured the engine. Within seconds, the tower told him he was on fire. He climbed out of the cockpit and waited nearby until the crash crew came and put out the fire. The aircraft sustained substantial damage.

The sequence of events got out of hand after the pilot had made the first two runs and failed to remember to allow the brakes to cool. He was so used to limited use of brakes in the *Harrier* that he forgot one has to allow cooling between hard braking applications. On the third run, when he applied the hot and severely worn brakes, he did recognize a reduced effect. After he stopped and set the parking brakes, the hydraulic fluid leaked around the worn pucks, caused a loss of pressure, and the fluid burst into flames.

Investigation revealed the brake discs had fused and showed frictional wear and crystallization, which indicated a temperature in excess of 1000 degrees. That's pretty hot! All it takes is 648 degrees to ignite the hydraulic fluid and start consumption of the tires.

Had the pilot thought to revert to procedures used in conventional fixed-wing aircraft, he would have allowed time for the brakes to cool between runs, and he undoubtedly would have asked the tower to send the crash crew sooner.

Unsafe Gear Indication. An F-4 pilot made the break, and on downwind dropped the gear. The starboard main landing gear indicated barberpole. There was also a light in the gear handle, a flashing wheels light, and no AOA indexer lights. Problems?

Several cycles of the gear were made without correcting the unsafe indications. The pilot and RIO referred to the NATOPS PCL (pocket checklist) but found no set procedures to follow – under the landing gear malfunction section. The gear was checked by a wingman and reported down.

The pilot requested and was cleared for an arrested landing. The landing was uneventful, and after leaving the E-28, the pilot taxied to the line *without any downlocks installed* and shut down. The aircraft was downed

APPROACH is a monthly publication published by Commander, Naval Safety Center, Norfolk, VA 23511. Subscription price: $11.70 per year; $2.95 additional for foreign mailing. Subscription requests should be directed to: Superintendent of Documents, Government Printing Office, Washington, DC 20402. Controlled circulation postage paid at Norfolk, VA.

for the malfunction.

Three hours later, electricians, aware of the gear discrepancy, corrected a gripe on the lateral trim indicator. (Still no downlocks.) Maintenance control was advised that the gear problem was not electrical in nature and belonged to airframes. One engine was windmilled to check the trim work. It checked OK, and that gripe was signed off.

The aircraft was then prepared to be towed to the fuel pits (still no downlocks). While being towed, the starboard main gear began folding as the *Phantom* rounded a corner. Before the tractor could stop, the gear folded to the point where the F-4 rested on the starboard wing fold butt. The crash crew raised the aircraft, lowered the gear, and finally downlocks were installed. Let's hear it for the crash crew!

The aircrew's failure to find the correct section of the PCL to deal with the emergency may be attributed to their lack of familiarity with the checklist, poor organization of checklist material, and cockpit distractions. Unsafe gear notations are found under hydraulic emergencies. The pilot and RIO had no hydraulic problems and didn't refer to that section.

They also failed to have downlocks installed before taxiing, or at the very least upon safely reaching the line. The ground accident report said the pilot was highly experienced in the F-4. He stated he knew of many instances of unsafe gear indications where the gear were locked, and assumed he had the same situation. The fact that his gear had not collapsed after landing must have made him think it was an indicator problem.

During a period of 4 hours after the F-4 was on deck, many knowledgeable, qualified maintenance personnel knew about the problem and did nothing to have downlocks installed. They too were victims of the same complacency as the aircrew. The chain continued on. The tow crew ignored the requirement to install downlocks before towing.

The CO in his comments pointed out the cause of the ground accident as personnel error by the flightcrew and maintenance folks. He acknowledged the lack of concern in the F-4 community about towing *Phantoms* without downlocks installed, but took action within his squadron to preclude a recurrence. He established an inspection by plane captains of the downlock limit switch to ensure that it's locked — before shutdown. He also decreed that henceforth and forevermore his *Phantoms* won't be towed until downlocks are installed.

Yaw Problems. The pilot of an SH-3 had been flying for about an hour and a half one night when a malfunction in his automatic stabilization equipment began. He secured the aux servo which stopped uncommanded movement of the cyclic stick during a right turn.

The pilot thought further troubleshooting might help him to write up the gripe in better detail. He turned the aux back on and made another right turn to return to base.

While in a 15-degree bank angle, the yaw pointer on the A-mode indicator pegged to the left. After 20 degrees of turn, the pointer moved and pegged full right, followed by the right rudder pedal moving full forward. Heavy pressure on the left rudder pedal didn't produce satisfactory results in returning the pedals to neutral.

The pilot secured the aux again, and full control of the rudders was regained. He declared an emergency and made a normal landing at Homeplate.

Extensive troubleshooting ensued, and an inspection of the aux servo revealed no major discrepancy. Minor discrepancies were found in that the yaw open loop needed adjustment, and a cyclic stick jump of one-fourth inch on securing the aux servo necessitated an adjustment of the ASE valve.

The aircraft was test flown and developed the same yaw problem. However, the pilot was able to override the yaw pedal pressure without securing the aux servo. The cyclic stick exhibited lateral left pressure in a hover aux off, but didn't move as on the original flight.

Further troubleshooting revealed an improperly adjusted force link which was replaced. Extensive checks were performed without additional discrepancies. However, due to lateral pressure and movement from the cyclic, the primary servos were removed and sent to AIMD for timing checks. All were found to have internal leakage, necessitating replacement.

Pilots should be aware that any ASE yaw problems experienced on night, low-level, overwater flights are greatly amplified. Even though an ASE hardover or misadjusted force link can be overridden, it is important to remember it may take up to 25 pounds or more of force on the pedals to return the pedals to normal. This problem, coupled with a possibility of vertigo, in low-level instrument conditions could cause pilot reactions to lead to a situation from which recovery is doubtful. ◄

SAFETY
is NOT a word game

By LCDR J. M. Bittick
VF-202
NAS Dallas

AS the safety officer of a Reserve Fighter Squadron that has flown more than 23,000 hours and just celebrated its seventh anniversary free of a major accident, I have been asked by admiring followers and envious fellow safety officers for our successful formula. It isn't a "play it safe" philosophy – the squadron at one point participated in 13 ACM (air combat maneuvering) deployments in 9 months, and still hones ACM skills regularly. It can't be a benign environment – just last year the unit successfully completed transition to the F-4 *Phantom* operating off a single 8000-foot runway which runs downhill and ends in a lake. Additionally, the aircrews look at the blunt end of a big, gray boat on a regular basis. Actually, the solution is quite simple. Silver crosses are a part of our flight gear, and every preflight ends in a good luck rub of the radome while simultaneously mumbling a few magic words to the great F-4 god!

Fear and superstition aside, there are a few points that come to mind which may explain our success. (Why else would I be writing this article, right?) Since my theories are fairly shopworn in the trade and receive extensive lip service, I'd like to present them in the form of the ever-popular quiz. So – ready, class? Take out paper and pencil, and see how you stack up. Answers are at the end of the quiz. (Note: If you need to check the answers, you've failed!)

1. Name the capital of Illinois. (Oops, wrong quiz!)

2. When your safety officer schedules the beloved safety review, does your CO start off the festivities with a resounding endorsement, sit in on the first 20 minutes of the first lecture, and then remember an "important conference" the rest of the day?

3. Do the "heavies" promise a heavy downpour of fire and brimstone on any hapless JO found guilty of a slight case of "get-home-itis," and then subsequently get caught landing in the middle of a rainstorm with 10 minutes of fuel remaining – with no retribution?

4. Do your safety officer and ops officer frequently discuss basic differences in operational philosophy? In language that would make a boatswain blush? At 140 decibels?

5. When in the course of human events your unit is involved in a joint operation, and you get down to your basic nitty-gritty (i.e., the skipper is reduced to two choices – cancel an evolution or "bend" the rules a bit), does he:

a. Press on, rationalizing that it'll be OK "just this once"?

b. Do a creditable soft-shoe, refusing to make a clear-cut decision but hinting strongly to the ops boss that it would be desirable to "hack the mission" to "look good for CAG"?

c. Swallow hard, scrub the mission, and steel himself in preparation for the agonized bellows sure to follow.

d. Other.

6. When, in order to meet the flight schedule, the maintenance officer tosses a "cripple" into the flock, does your safety officer:

a. Accept the situation with understanding and good grace?

b. Close eyes tightly, insert fingers in ears, and proclaim "I know noth-innnggg"?

c. Hastily request emergency leave.

d. Scream like a freshly violated eagle.

7. When the resident free spirit, Ace L., yields to the temptation to prove once again that he is undoubtedly God's gift to aviation, is he likely to:

a. Meet with official disapproval, but secret admiration by his contemporaries?

b. Touch off a rash of "one-upmanship" to settle the matter once and for all?

c. Be the recipient of an extended heart-to-heart by the skipper and/or the safety officer?

d. Be frostily reminded by his erstwhile admirers that he could have blown the squadron's blossoming safety record?

(Choose two.)

8. There is no question in the mind of your maintenance chief that nothing but top quality maintenance is expected, and shortcuts will not be tolerated at any time. (True/False)

9. Your maintenance officer feels free to concentrate his department on a coordinated, long-range, mostly full systems maintenance effort, without having to be overly preoccupied with (and degraded by) frequent all-out, "to hell with QA and the paperwork, get it in the air" evolutions. (True/False)

10. Based on your experience in your squadron, the probable cause of your next major accident will be:

a. Material failure.

b. Maintenance error.

c. Pilot error.

d. None of the above.

e. All of the above.

(Sorry, only one to a customer.)

Well, how did you do? If you can answer all the questions correctly (with the exception of No. 1) and still have a lousy safety record, perhaps you should be seeking answers as to Who up there doesn't like you, instead of sitting around the readyroom reading dumb magazine articles like this one.

If, on the other hand, one or more of the questions caused you to squirm a little, I hope you'll devote considerable thought to how you can improve the situation.

To sum it all up, safety must be an attitude – not just a paperwork program – that starts with Rocket One and is shared by every member of the unit. Aircrews must be competent and professional enough not to feel the need to prove how good they are. The old hands should assume the responsibility for setting the tone for the new guys. Maintenance must be considered an integral part of the safety team. Shortcuts and halfhearted workmanship cannot be tolerated. And, yes, decisionmakers must be prepared to have the courage of their convictions and cancel sorties to avoid compromising the program. Even a little bit of "do as I say and not as I do" is probably too much.

A perfect score on this quiz may not guarantee your squadron 23,000 accident-free hours. It will, however, guarantee that your squadron will operate more effectively and safely than if it relies on luck, superstition, or past performance. Anything less than total squadron participation in a safety program will not be successful for long, and we cannot afford to accept less. ◄ 9

(Answers: 1-freebie, 2-no, 3-no, 4-no, 5-c, 6-d, 7-c and d, 8-T, 9-T, 10-d.)

Stranger in a strange land

By LT Bill McMurry
VF-121

Apologies to Robert Heinlein.

"JOIN the Navy and see the world" is the saying that jumped out of every recruiting poster most of us remember from our younger years. The Navy's recruiting program has since taken a somewhat different and more modernistic approach to emphasize the appeal of naval service. However, as every Navyman knows, there is a certain intoxication that accompanies a departure from Homeport for new and unseen places to be visited on a cruise. Anticipation abounds as one thinks of the new faces, cultures, and landmarks that lie in the near future as his ship makes its way "across the pond."

Aircrews stationed on a ship leaving for a deployment to an unfamiliar area are somewhat different than their shipmates in this regard, as they face the real possibility of arriving at "strange lands" in a nonliberty status as a result of situations requiring diverts, official trips, or other operational necessities. Since this possibility exists, all deploying aircrews should be furnished with information that will enable them to launch for such fields, confident that they can navigate to them, and once there, establish a rapport with the officials and inhabitants of the country in question. All commanding officers and OICs ought to ensure that their crews are well aware of what faces them in such environments and what the proper operating procedures are.

As a start, a few general lectures should be scheduled during the many "AOMs" conducted during an oceanic crossing. A good way to start might be the introduction of a relief map of countries near anticipated operating areas, with a discussion of each country's terrain. Included with this should be any weather peculiarities during the next few months. Still in a general sense, the cultural traits, languages, and other significant characteristics such as religion and proper etiquette should be briefed. Aircrews need to be aware of the correct and courteous manner in which to communicate with the welcoming committee

which is sure to appear upon arrival. The air intelligence officer can provide an abundance of information in this regard.

Once the general feel for the new area is generated, specifics should be addressed. Of primary interest are divert fields, which should be briefed in depth. An appropriate beginning might be to circle the location of such fields on terrain maps of the area so that VFR navigation procedures can be introduced. IFR equipment may not be as plentiful or accurate as we might like it to be, and in fact, may not even be compatible with gear aboard squadron aircraft. Therefore, it is of paramount importance that VFR orientation be stressed from the start.

If room permits, attaching an aerodrome sketch to the terrain map would be very helpful. Such sketches can come directly from FLIP approach plates. If a larger scale is desired, index or kneeboard cards with the airport drawn on them can be placed on the map itself in the proximity of the airfield's location. To tie all this together, a brief from the squadron navigation officer, pointing out the highlights previously mentioned, as well as comments drawn from the IFR Supplement, would be quite appropriate.

Of course, there are always members of the squadron who have "been there before," and they may prove to be invaluable sources of information on all aspects of flying in these unfamiliar areas. They should take it upon themselves to volunteer any information acquired during previous visits that could be of assistance to their squadron mates.

In a less pleasant but always necessary aspect of aviation, appropriate SERE briefs should be provided for the type of terrain and weather that will come with the deployment. Included in these briefs should be a discussion of the political climate and history of operating areas, so that should a SERE type situation develop, the aircrew can readily assess their status in a given country.

Once this information has been promulgated, more specific procedures should be addressed. For one, detailed guidelines for divert (bingo) situations should be established. Included should be procedures for:

- Communicating with Homeplate during departure and upon landing at the divert site.
- Jettisoning ordnance.
- Returning to Homeplate.
- Flight plan filing.
- SITREP reporting should the crew elect to RON.
- The location of the nearest allied armed forces base.
- Aircraft security.

Above all else, it should be stressed that the aircrew remain with their aircraft and ensure the proper security of all classified materials and equipment.

After this sort of indoctrination has been completed, the aircrews should have a firm foundation for operating procedures in unfamiliar areas, but this certainly is not where such discussions should stop. It is imperative that all flight leaders give an extensive brief concerning the layout, facilities, and status of all possible divert fields. Items taken for granted when operating in CONUS may not be available at such aerodromes. These include lighting (many fields do not even operate at night), existence and location of arresting gear, what aids to navigation are available, and possible frequencies to be used when contacting tower. This information is readily available in the IFR Supplement and approach plates. Also, due consideration must be given to establishing the ship's position and determining the VFR navigation plan to find the airport.

Finally, as always, each aircrew must thoroughly prepare mentally for all contingencies which may arise during a bingo profile to a foreign field. Some less serious emergencies may become nightmares when combined with the lack of compatible facilities at a given divert field. An

F-4 with a utility hydraulic failure that must bingo to a field with no arresting gear and a 7000-foot runway will certainly get the attention of its crew. A pilot diverting at night due to a NORDO condition may have trouble explaining why he landed at a field that published "No NORDO aircraft allowed to land" in the IFR Supplement. The old "what if" game becomes a handy training device in such an environment and should be used extensively before, during, and after briefing flights over waters off foreign shores.

In summary, flying around CONUS can easily leave aircrews complacent about procedures involving flying into or around other countries. Diverting, making a parts run, or "flying off" during predeployment buildups becomes a simple matter when all that's required is giving Center a call and being told which frequency to shift to until touchdown – not to mention traffic advisories. In contrast, when flying to a field in Europe or Asia, the person answering your call on the radio may not even speak English very well. Perhaps the assumption ought to be that you're on your own, and any help obtained is pure gravy.

A bingo or divert flight is originated for various reasons, most of which are not exactly comforting to the aircrew. Then there is the bingo profile itself. It must be strictly adhered to in order to conserve precious fuel. Add to this an aircrew digging out charts and approach plates for the first time, and you've got a situation that's shaky at best. The time to be confident of where the airplane is going and how the field will look is before man-up – not when the boss tells you, "Your signal is bingo." When strapping in, know where the primary and secondary divert fields bear from the ship, how they look, how you're going to navigate there, and how to act and what to do when you land.

Traveling to new and different countries is exciting for sure, but it places demands on aircrews that should be professionally approached to ensure safe and proper flight procedures when flying away from the ship. Your squadron should provide information and guidance, but ultimately, aircrews are responsible for their personal preparation. ◄

Bravo Zulu

LTJG G. F. Zambito
VT-7

FLIGHT Instructor LTJG G. F. Zambito and his student, ENS Inglis, took off on a night instrument training mission in a TA-4J. Upon level-off at FL250, ENS Inglis informed LTJG Zambito that he could not retard the throttle below 96 percent RPM. LTJG Zambito immediately took control of the aircraft, turned the *Skyhawk* toward home, and declared an emergency with Houston Center. He then switched frequencies to inform the squadron's operations duty officer of the critical situation and to review the NATOPS procedures for the emergency.

The first step LTJG Zambito took was to switch the fuel control from PRIMARY to MANUAL, which slightly reduced the high RPM setting. He then zoomed the aircraft to slow to gear retraction speed and dirtied the aircraft. The instructor pilot determined the approach speed to be approximately 200 KIAS. Based on this airspeed, he calculated a target altitude for emergency fuel shutoff. Finally, he contacted GCA for help in the straight-in setup.

At night, with poor visibility due to weather, and flying from the back seat, LTJG Zambito knew he was working with a small margin for error. At 200 KIAS and 200 feet AGL, the emergency fuel shutoff lever was moved to OFF, followed shortly by engine flameout. With RPM unwinding, LTJG Zambito executed a flawless flare to an on-speed touchdown and uneventful rollout. The longfield arresting gear was not needed.

By his skill, knowledge, and judgment, LTJG Zambito saved a valuable aircraft and prevented possible injury to himself and his student. Well done! ◄

The Happy Hooker's sad tale

THE Happy Hooker was an HH-2D based aboard ship, and had provided many fine services to others. She was a pleasingly plump helo, with her accouterments distributed just so. Kaman saw to that.

On the fateful day that was to be her last, she was scheduled for a routine pickup. She wasn't in the least reluctant to swing someone – day or night – and effortlessly would pluck him from land or sea. The flight schedule promised a "morner" – at 0900. It involved a flight from the ship to an island site.

Promptly when the big hand reached 12 and the little hand pointed to 9, the pilots launched. Later, the HAC told the AMB (aircraft mishap board) that he and the copilot had flown together a dozen times and had been to the landing site several times. Their brief was a short one, limited to a single question. Do you know what we're supposed to do? No emergency procedures were discussed. It was all very casual.

The flight to the island, about 50 miles away, was flown just below some scattered clouds, and on arrival a normal landing ensued. The copilot made the approach and landing from the left seat. The landing site was an oval-shaped area with dimensions of 20 by 85 feet on a hilltop 430 feet high.

The helo crew picked up two passengers, and the copilot lifted into a hover. All gages were normal, and the helo transitioned into forward flight. As the helo moved off the edge of the site, the HAC raised the gear. Simultaneously, the No. 1 engine dropped off the line and wound down.

The copilot kept flying, nosed over to pick up some airspeed, and the HAC put out a Mayday. The copilot flew a racetrack pattern and climbed to 550 feet to set up for a landing back at the landing site. His approach was normal

until he reached a point between 200-300 feet short of the landing spot. The helo began to sink, and rotor RPM drooped. The copilot uttered an expletive, tried to wave off, but the helo impacted the slope in a left turn. The H-2 rolled over on its left side and slid 50-75 feet down the hill, where it came to rest. Everyone egressed safely, without injury, and luckily the helicopter didn't catch fire.

This was not the final resting place for our now sad Hooker; she again was let down disrespectfully when a couple of days later, a CH-53 arrived to hook her out. Unfortunately, she became the mistress of King Neptune when the big fella dropped her.

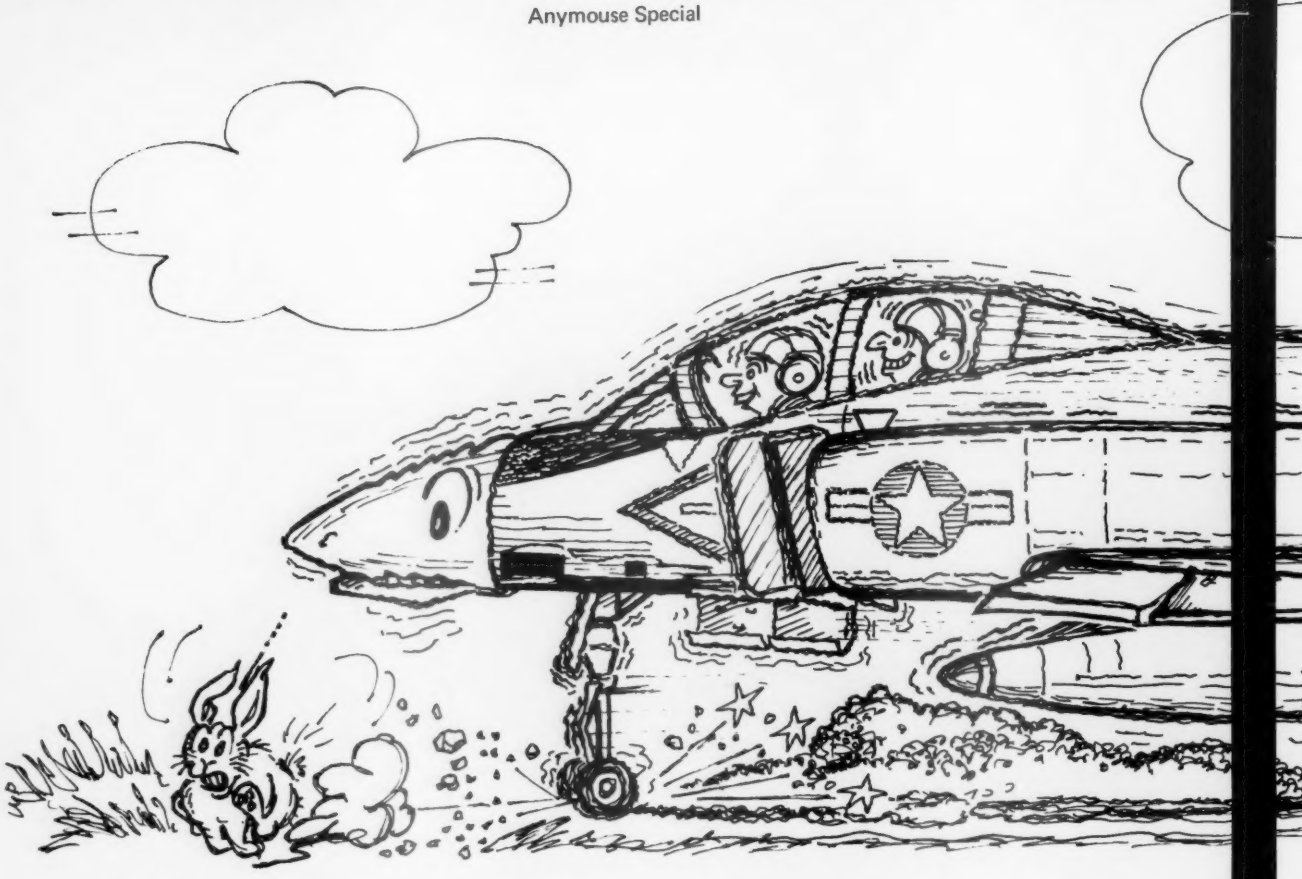
Later, as the Mishap Board started to collect the facts, it was discovered that the pilots didn't discuss dumping fuel, jettisoning the aux fuel tanks, or even landing in one of many flat fields between the hilltop and the ocean. Both pilots stated that they were concerned about FOD at the other fields, and they knew communications and help were available at the hilltop site.

The Mishap Board had a field day with this couple of Johns. They not only didn't conduct any sort of a brief – they didn't even handle the emergency correctly! They had no idea of what to expect if an engine failed on a high-temperature, high-density altitude day. So, when the unexpected happened, they were not prepared.

It is the responsibility of every pilot to know the capabilities and operating limits of his aircraft. The NATOPS manuals all too often remain unopened, and the performance charts go unused. As the dust gathers on the book, so it also gathers in mind. NATOPS should be your friend and ally. Use it and keep those happy hookers happy.

APPROACH's "Believe It or Not!"

Anymouse Special



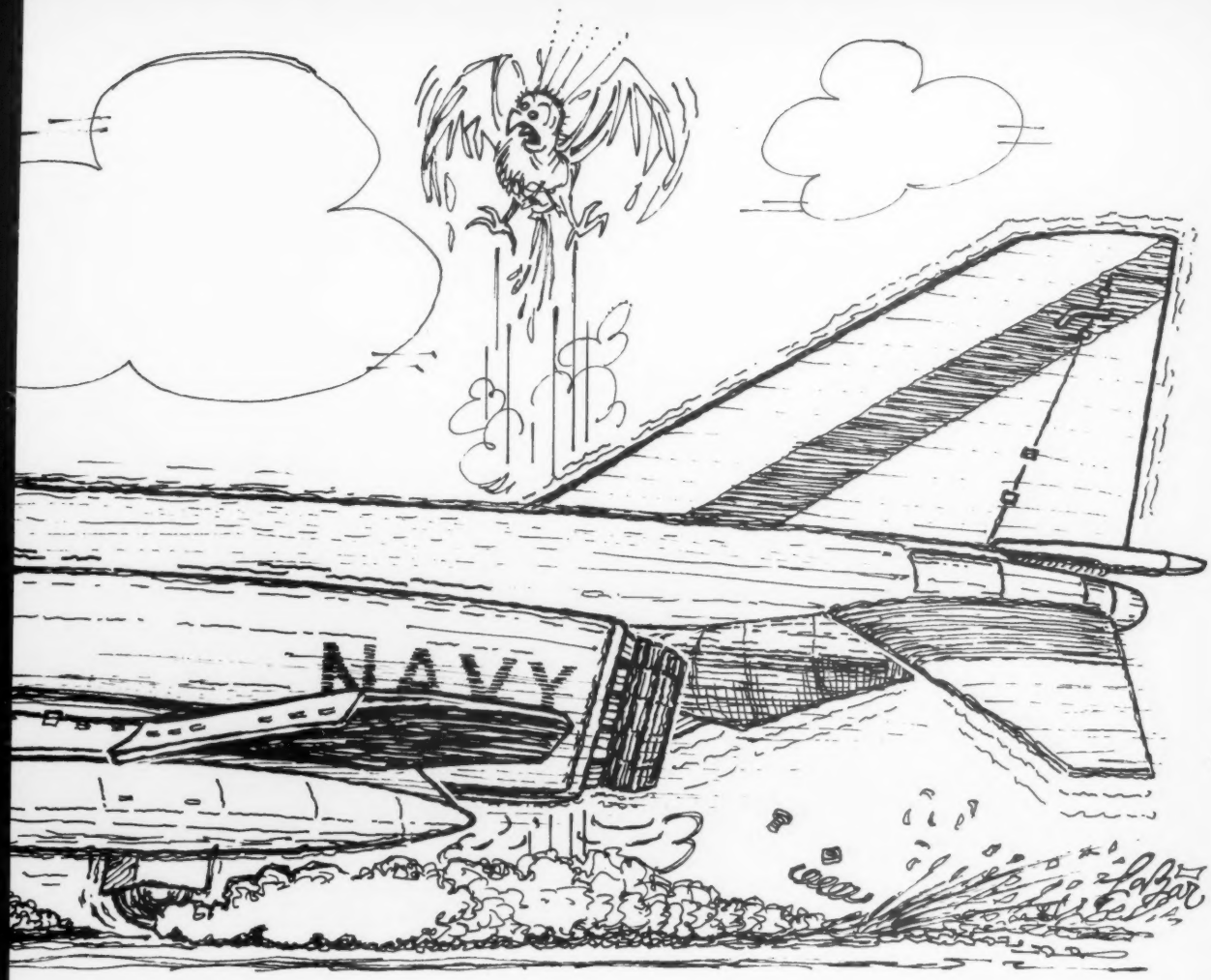
MANY months have passed since I witnessed the incident I am about to relate. Since then I have scanned the message traffic, NAVAIR NEWS, and APPROACH for some mention of it – but to no avail. It seems that the aircrew/squadron chose not to report an obvious Delta Sierra.

I was manning my *Phantom* when I heard another F-4 taxiing up. The driver was really smoking – I assumed he was late for an overhead time. I stood up on the turtleback to see what this young man was up to.

As the F-4 turned the corner to take the active, I heard the sound of his J-79s going to MRT as he began his takeoff roll with no engine runups, bleed air check valve test, etc. The aircraft tracked straight for about 5 feet and then immediately swerved left and departed the runway. I expected to hear the sound of his engines winding down and then to see a shaken and sheepish crew exit from their craft and await a tow back.

This *Phantom* jock, however, was apparently well versed in rough terrain ops because he *added* power (narrowly missing the mobile LSO radio shack) and taxied down the grass strip between the runway and the taxiway. He proceeded down this "grass strip" for approximately 500 feet and then intercepted the taxiway and proceeded to back-taxi to the line.

My stick and I looked at each other in amazement and speculated on what kind of a reception this lad would receive when he reported the incident. As we were going through our "Did you see that?" and "What a Delta Sierra!" routine, we again saw an F-4 taxiing out for takeoff. (About 5 minutes had elapsed from the beginning of the aborted takeoff.) To our astonishment, it was the



same Phantom! This man of iron (head of iron?) then proceeded to replay the whole scenario: a too-fast taxi, pre-takeoff checks on the taxiway, and a rolling takeoff. Fortunately, he did remember to center his nose gear this time, so the takeoff was without incident.

Discussing this incident with the stick's squadronmates in the BOQ bar that evening, we were further amazed to learn that he had gone to the boat, made several traps, and RTB'd to Homeplate *without informing anyone of the incident.*

The next evening we were informed that this lad had taxied back to his parking space following his "cross-country" and had the plane captain perform a visual inspection of the aircraft while it was turning. Neither the plane captain nor anyone else in the maintenance detachment was informed that the aircraft had departed the runway. No discrepancies were found on this visual inspection, so our intrepid aviator launched.

When we questioned this young man's squadronmates on the incident, they assured us that "Although he's first tour, he's a good stick," and that to protect his and the squadron's reputation, no incident report would be made.

We had to wonder – if no report was made, would maintenance check the aircraft thoroughly for FODed engines or magnaflux the landing gear struts for stress cracks?

Awedmarinefightermouse

As Awedmarinefightermouse suspected, the Naval Safety Center has not received any notification of this incident other than this Anymouse submission. ◄

S-3 FLIGHT SAFETY

AN NFO'S VIEW

By LTJG Rick Miller

THROUGHOUT flight training, the NFO is taught to develop a scan of engine and navigation instruments. At first glance, a scan from the TACCO seat of the S-3A *Viking* is limited to the Multiple Purpose Display, the Special Stores Control Panel, the OXYGEN, EJECT, and GROUP EJECT lights, and the Environmental Control System FAN FAULT caution lights. It can be assumed that further instrumentation and advisory readouts were not included at this station so that extraneous information would not interfere with the TACCO's prosecution of a tactical problem. However, much more information is available.

A sharp-eyed TACCO can see the entire center instrument panel at the flight station. Here he can obtain such data as fuel flow, inner turbine temperature, fan and gas generator speeds, oil and hydraulic pressures, fuel and LOX quantities, navigation instruments, and flight mode information such as the ADF frequency. Also, the arresting hook lever, parking brake handles, and the entire master caution panel are visible.

The center console is also in the TACCO's field of view, but it has been my experience that its acute angle to the line of sight precludes the possibility of gaining very much information from it. However, he can see the APU handle, fuel dump control, and the gust lock.

Also in sight is the right-hand portion of the pilot's instrument panel. The pilot's cathode ray tube display, the firewarning, master caution, the aircraft carrier landing system's discrete word display lights, and the horizontal situation indicator and vertical director indicator are visible.

Once a TACCO is aware of the visibility and relative position of these indicators, he should learn how to interpret them. In many cases, the distance or viewing angle prevents the reading of exact quantitative data, but qualitative or comparative information can still be gained.

The most obvious examples of this are the oil and hydraulic pressure gages. It would take an unusually sharp-eyed backseater to be able to read the numbers on any of these gages, but needle positions can indicate unbalanced operation and impending failures.

The ambitious NFO at this point will brush the cobwebs off of his Flight Systems manual and start to explore the heretofore forbidden territory of the frontseats. A few round numbers, including engine speed, temperature restrictions, and fuel capacities committed to memory are a good start.

Then may come the operation of the Nav Display and

Flight Mode selector panels. The difference of APU (auxiliary power unit) handle positions and what they represent, along with the relative positions of the various caution and advisory lights, are also useful to know. The TACCO should investigate the various types of data available and determine what he wishes to include in his scan.

A typical flight can include monitoring some or all of the preceding items. The first thing on which I back up the pilots is the position of the master arm and search power switches. These are checked upon entering the aircraft along with the headknockers and canopy severance handle safety pins.

I monitor the engine starts of the various engine gages, looking for hung-start and hot-start indications. I then look for positive oil and hydraulic pressure indications. After engine starts, I am busy loading the program, but I still listen on the ICS for the N_f figure computed by the copilot. Before takeoff, I also check to ensure that the pilot and copilot are using different platforms for their attitude displays.

During the takeoff runup, I quickly scan the engine instruments and master caution panel before assuming a suitable ejection position and checking to see that the APU is shut down.

In flight, I glance most often at the VDI (vertical director indicator) for the simple reason that it keeps me from getting severe vertigo. I also scan the engine instruments for balanced readings on all gages. It is good to note the fuel flow and ITT gages to see that they are displaying reasonable indications. Knowing the basic operation of the NAV SEL and NAV DISPLAY SELECT switches (for instance, how to configure them for OTPI (On Top Position Indicator) operation) can be very useful. Another gage that receives my attention is the fuel quantity totalizer.

Prior to carrier landings, I check to see that the hook is down and the APU is started. For field landings, these don't apply, but the APU should be started prior to engine shutdown.

These are just a few examples of what the S-3A TACCO can do to help make his flights safer. A few other things to keep in mind should be considered here. First, one should remember always that leaning too far forward or to the left may cause parachute deployment and create a hazard to all from the spreader gun. A second potential problem area is that of jumping on a pilot's procedures with two left feet. It is important to remember that the pilots are formally trained in all of these areas and are the final judges in any safety of flight items. If unsure of a possible discrepancy, it is wise to bring it to the pilot's attention in the form of a question about the particular indication. Also, unless one is positive that an unsafe condition exists and is not being acted upon, it is wise not to distract the pilot during critical periods of the flight such as takeoffs, formation flight, approaches, and landings – especially aboard the carrier.

Since serious consideration is being given the COTAC (copilot TACCO) program (placing NFOs in the right-front seat), S-3A TACCOs should become aggressively cockpit-oriented. We should realize that cockpit duties are not incidental to our job and that flight safety *is* a part of our job. ◄

If everything seems to be coming your way, you're probably in the wrong lane.

Ace L.

H-46 INFLIGHT CONTROL PECULIARITY

By LT T. Dan O'Neill
HSL-31

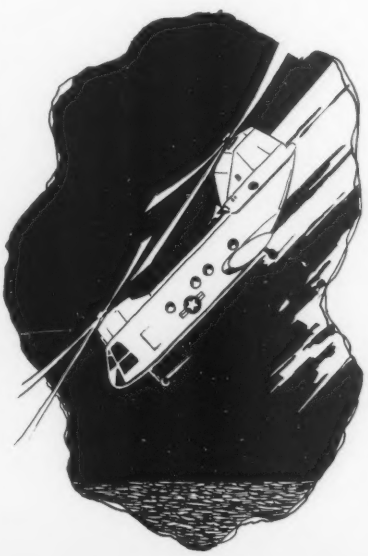
A LOOK of bewilderment appeared on the face of the radar controller as he stared at his blank scope. A second before, he had been following a blip. It had vanished. Quickly he marked the spot with a grease pencil. It was 2 miles downwind of another mark he had made a minute earlier when the HH-46A SAR helicopter pilot reported, "Mark, on top, commencing approach." Now there was no radar skin paint or IFF readout from the helo. The aircraft had just finished its 270-degree roll in on the downwind 90-270 turn, and although it was a no-horizon night, things were going well and the altitude readout was 200 feet – just as it should have been.

This opening isn't true. Not yet! However, the chances are very high that it will be, unless particular attention is paid to a little known sequence of events peculiar to H-46 hover-aft helicopters and the HH-46A low visibility SAR pattern. All HH-46A are hover-aft helicopters.

Unlike H-3s, all H-46 ATS-induced (automatic trim system) control inputs must have a corresponding flight control lever movement to have the input become evident in the rotor system. Even the slightest hamfistedness on the part of the pilot will not allow the ATS inputs to help control the aircraft. (Have you ever been less than LT Smooth at 175 feet overwater, doing standard rate turns in anticipation of an immediate live rescue?) Any such control movement opens a centering spring microswitch and puts the ASE (automatic stabilization equipment) in standby mode. That isn't too bad by itself because most H-46 pilots are proficient enough to handle IMC ASE-off flight at 175 feet in turns; at least they are proficient enough until control inputs unknown to the pilot are fed into the rotor system. You might reasonably ask whereinhell would something like that come from.

Remember when the tails were falling off the old CH-46As in Vietnam? Airframe Change 218 was introduced to eliminate flight in the hover-aft speed trim mode above max allowable hover-aft airspeed. This airframe change causes the speed trim system to shift to manual aft mode from hover aft. This action takes place in the FLCT (forward longitudinal cyclic trim) and ALCT (aft longitudinal cyclic trim) actuators located on the stationary swashplates and effects a nose-low tip path plane change of 5.32 and 2.0 degrees respectively. Unlike the ASE actuators, this input is not fed into the cockpit control levers whatsoever. If the hover-aft interlock is operating properly, the result is a dramatic nose-low pitch of the aircraft. If the hamfisted pilot places the ASE in standby, he puts himself on his own to deal with this pitchover input which will go to more than 35 degrees nose-low if not corrected. If unimpeded by the pilot restricting cyclic travel, the ASE will cause a recovery before water impact, but the aircraft will have descended 100 feet and accelerated to well in excess of 90 knots. There are three saving graces, however:

- When maximum hover-aft airspeed is exceeded, the hover-aft chip segment on the caution panel will illuminate at the same time the FLCT and ALCT actuators start their movement, giving a warning. Immediate reduction of airspeed will stop the actuator-induced pitchover control input.
- This input will only occur if the aircraft is in hover-aft mode and the max hover-aft airspeed is *exceeded.* NATOPS states: "The caution light will illuminate as the airspeed increases through 70 knots IAS and the actuators go to the manual aft mode."
- The pilot has to get off airspeed at least 10 knots before this whole catastrophe begins. The HH-46A low visibility SAR pattern places the helo in hover aft at 60 KIAS and 175 feet without a horizon. You might call it a setup.



So, in simple terms, the bottom line reads: To *avoid* a 30-degree, nose-low 100+-knot water entry, immediately reduce airspeed when the hover-aft caution light comes on. It's nice to store this away in the old squash and get it out of that file cabinet labeled "Spinal Response at Low Altitude in IMC." ◄

Engine failure when embarked is most critical after just becoming airborne or just as a helicopter is about to slide over the deck edge for a landing. This mishap took place after takeoff. Although the helicopter was a CH-46F, the details and the procedures used should provide general . . .

Grist for the helicopter AOM mill

THE call sign for the mission was Hotel-08, and the helicopter was part of a flight of four. There were two pilots and two crewmen aboard. It was a multipurpose mission in that they were scheduled to perform a troop lift, then participate in a night raid, and act as the emergency MedEvac aircraft.

The flight of four departed on time, and Hotel-08 was on the wing of the flight leader. All aircraft landed aboard another ship and picked up their first load of troops. They proceeded uneventfully to the drop zone, offloaded, and returned to the ship for the second load. There were only two landing spots available for the flight's use, so the flight leader and Hotel-08 landed. The other two helicopters orbited overhead.

After the two aircraft had been waiting on deck about 10 minutes, they were advised there would be a 15-minute delay before the troops would be ready to load. The flight leader and the HAC of Hotel-08 decided to hot refuel and get airborne so the other two could land and refuel before loading. The flight leader was cleared for takeoff, made a left turn across the bow, and continued to the delta pattern aft of the ship. Thirty seconds later, the HAC of Hotel-08 began his takeoff.

The HAC had let his copilot fly the first leg, but decided to take this one himself. Upon receiving the OK to lift, he beeped the engines to 104 percent and turned on the stabilization systems. He lifted into a 10-foot hover, checked all gages OK, and began his takeoff.

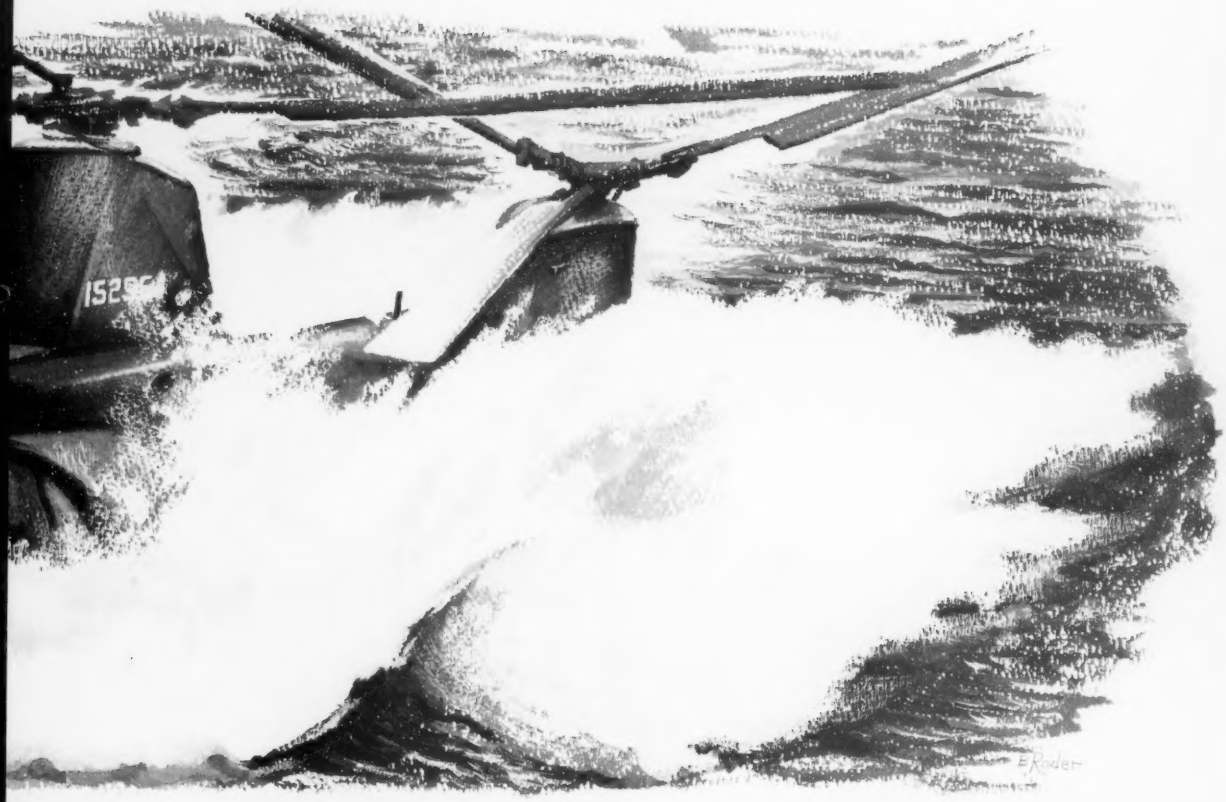
The takeoff was straight ahead and level. Just after clearing the deck edge, the crew heard a loud bang. The crew chiefs thought it sounded as if something had zapped the helo externally. The copilot thought the noise sounded like a sharp crack. Witnesses on the flight deck said the noise sounded like a shotgun blast fired at a metal wall.

The copilot hollered that they had lost No. 2 engine, and saw the No. 2 N_f drop to zero. Other gages were winding down. The aircraft began to settle. The HAC, with only 45 feet between the helicopter and the water, told the copilot to jettison fuel. Instantly, the copilot threw both switches to the jettison position.

The HAC pressed both beep trim switches to increase, lowered the nose to try to get some airspeed (he had about 20 knots), and lowered the collective to maintain rotor RPM. The copilot thought he had hit the APP switch, but later couldn't be sure he really had hit it.

The aircraft was out of the single-engine flight envelope, but the HAC made every effort to fly. When the HAC knew that he couldn't remain airborne and that a ditching was inevitable, he initiated a flare just prior to water entry. The impact was not violent. Yet, unknown to both pilots, the cargo ramp separated, letting water rapidly fill the cabin. The elapsed time between "bang" and ditch was 6 seconds.

Immediately after ditching, the copilot pulled both engine condition levers to stop, then armed and applied the rotor brake. He didn't advise the HAC what he had done. The HAC was considering a single-engine takeoff, and later



admitted he had a flash about the possibilities of water taxiing. He was surprised and somewhat teed off when the engines were secured. The copilot said he hadn't considered either possibility, due to the impact. His mind was made up on one thing – to get out – and to do that, the blades had to be stopped.

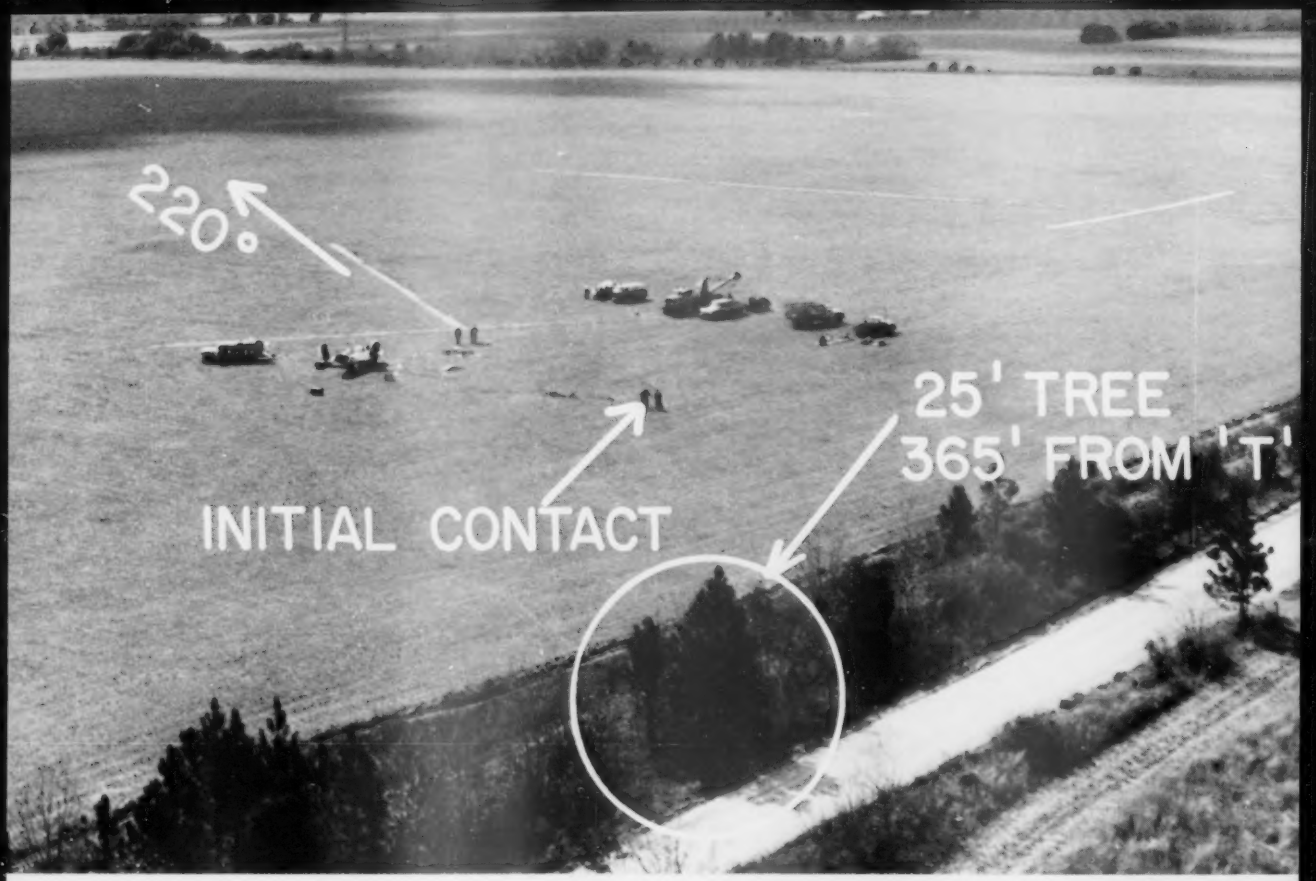
The HAC hollered, "Get them started, and let's fly it out!" However, the copilot couldn't get the APP started, and the helo rolled to port. The HAC jettisoned the emergency escape hatch, and the cockpit filled with water from the open window and the cabin section. The copilot egressed first, through the pilot's escape hatch, and the HAC followed him out. The crewmen also escaped safely, although the crew chief's helmet was knocked off by one of the crew door steps. He was momentarily knocked back into the helo, but recovered and went out the crew door.

The helo rolled inverted and sank in about 40 seconds. Another helicopter was overhead and could have picked up the crewmembers, but held off because the ship's rescue boat had almost reached the scene. The survivors were recovered quickly and returned to the ship.

After the helo was located and raised, an inspection of the No. 2 engine revealed destruction of the inlet guide vanes and the first three stages of the compressor section from unknown FOD. The inspection also showed the ramp had separated from the airframe on the port side. The hinge ripped loose, the ramp actuator broke, and so did the hydraulic lines. This compromised the helicopter's watertight integrity. Further investigation revealed the No. 1 engine condition actuator arm did not get to maximum, so the HAC couldn't get maximum beep.

The primary cause of the accident was the failure of the No. 2 engine during takeoff. The failure of the aircraft ramp assembly during ditching made recovery impossible. Nevertheless, if the ramp had remained secured, the copilot's act would have negated any chance of recovery.

Copilots must refrain from securing aircraft systems without the aircraft commander's knowledge. Actions which affect the survivability of an aircraft should not be initiated without the aircraft commander's approval. ◄



TOO LITTLE,

THE pilot and student took off in a T-34 on a scheduled primary pre-solo check and proceeded to one of the outlying fields for simulated ELP (emergency landing practice). The instructor commented that the student's takeoff was above average, but as they entered a 2-mile initial on their first approach, they were slightly left. The student was correcting to the right at 1 mile.

When he thought he was over the "T" (a reference point on the ground), the student began a left turn about 1000 feet early and used less than enough bank angle, which put the aircraft wide at the low key. Passing through 1000 feet, he lowered flaps too early and found himself at a deep 90-degree position. He tried to increase his glide by raising the nose a bit, and his airspeed bled off to 65 knots.

The instructor let him continue to about 75 feet AGL, then added full power to wave off. Directly in front of him were trees. He raised the nose slightly to ensure clearance. The instructor felt a thump and thought he had clipped the top of a tree. Next, there was a slight aircraft buffet, the port wing dropped about 35 degrees, and the nose fell through about 15 degrees.

The T-34 struck the ground in that attitude, in uncontrolled flight. It slued around about 200 degrees counterclockwise before coming to a stop. Neither pilot was hurt although the instructor had to help a dazed student out of the cockpit. They both climbed out of the aircraft and moved some distance away. The instructor had tried to secure the mixture, but it was jammed open. He turned off the ignition switch but didn't secure the battery because the instrument panel was knocked askew. However, no fire broke out, and after a 10-minute wait the SAR helicopter landed, picked up the pilots, and took them to Homeplate.

The Mishap Board interviewed the instructor and student and discovered several important omissions by the pilots. For example, since the low wing of the T-34 blocks downward visibility, the student didn't know he had to use a cross-reference to ascertain when he was directly over the "T." His misjudgment of the high key was the first in a series of events which led to the crash. The instructor got behind the aircraft, applied power to wave off too late, and in maneuvering to avoid the trees caused the aircraft to stall.

TOO LATE

It also came to light that the instructor let the student go too far in the approach without any comment or coaxing, and when the instructor took control, he didn't do so in a positive manner. They were both on the controls at the time of the crash.

The student maintained good airspeed until the 90 when he realized he was descending too fast and wouldn't clear the trees. However, he was reluctant to use power, so he raised the nose to stretch his glide. He was about to add power when the instructor beat him to it. The student admitted that if it had been any flight other than a check, he would have added power sooner. However, he knew that power was an obvious break in procedures, and he wanted to avoid the break. Due to the nature of the check, the instructor didn't say anything because he wanted to see what the student would do.

This accident is an excellent example for all instructors and pilots under training to emphasize that in the scheme of things, the first priority is safety. Very few student pilots – under instruction in the RAG or in operational squadrons – are capable of correctly handling an aircraft until they have many hours in the bird. Everyone will goof or get behind the aircraft during the early stages of checkout.

When this occurs, the pilot under instruction should take the appropriate action and try the maneuver again. Obviously, an instructor must never let the pilot under instruction go too far astray and not be able to recover. Above all else, the demonstration of good headwork is more important than an attempt to continue a dangerous situation in hope of completing the maneuver.

CHECKLISTS ARE FOR STUDENTS ONLY

(Or Are They?)

Anonymous

THE life of a training command instructor is not easy. One can easily imagine the frustration that sets in when the highlight of the day is watching an S-1 and S-2 pattern flown back-to-back. And if you don't like guacamole and tortillas, the social life of the community gives you nothing to fall back on for relief. Therefore, the cross-country instrument training flight is a way of life for the training command instructor, both for business and social (sanity) reasons.

The only thing better than a cross-country is a solo cross-country or one done with another instructor. The only problem with a student-less flight is that you tend to take a vacation from all student-oriented matters – checklists, instrument procedures, max range cruise, etc. Take, for instance, the cross-country flown some time ago by yours truly, advanced training command instructor extraordinarie.

The mission was a dropoff of a fellow instructor. He had orders to a Navy school near a west coast civilian field that also handled Navy jets on a limited basis. Indeed a coveted mission.

Selection of the stopover field for RON was dictated by servicing facilities, runway length, availability of arresting gear, parking security, and most importantly, availability of a fabled western beverage. Using the "pinky and index finger" method of calculating distances, a flight plan was quickly prepared, and we were on our way.

The trip was relaxing and enjoyable. It sure was nice not to have to bother with Metro checks, max range cruise, wearing oxygen masks, etc. The weather held good, and we terminated our first leg by cancelling IFR and coming into the break like "we used to do it in the Fleet." We may have fudged the 250 speed limit, but who can tell 250 from 400 from the deck anyway.

A night of merriment passed all too quickly. Nevertheless, we were ready to go the next morning and promptly filed (we thought) our flight plan. Our first inkling that something was not right came when we put our clearance on request, and the tower responded like they were reading from an "Anymouse" form: "Who? What? Where?"

It was then that my copilot checked his flight suit pockets and discovered that not only did he have a copy of the DD-175 – he had the original, too! So there we were, flat on the deck at sea level, potential egg plastered all over our faces. Fortunately, years of training – official and unofficial – came to our rescue.

My copilot, a Marine, mustered up his best drill instructor voice and queried the tower about what could have happened to the flight plan that he (so laboriously) prepared and that must have been (so negligently) lost in processing. The tower was profusely apologetic, but the Marine let it be known that he was a benevolent type, understanding of error, as long as the error was corrected rapidly and smoothly.

It was. We got the clearance we requested over the radio in record time and were on our way. The flight to the initial approach fix serving our destination was routine.

As part of the student instrument training, we religiously drum into our students the importance of the penetration checklist. All sorts of gouges (and jokes) exist about the penetration checklist, but the basics – weather, altimeter, and duty runway – are the ones we really stress. However, on a nice CAVU day, with only a single runway at the field and the altimeter read back several times, there was really no need for a formal checklist read by two experienced pilots.

As you may have guessed, there *was* a need for a formal checklist read by two experienced pilots. With no radar available at the field, we shot the only published TACAN approach until we had the field in sight. We then contacted tower for landing clearance.

The runway had an east-west orientation, and we were approaching from over the water. Being an east coast sailor, anytime I was shooting an approach from over the water, I was heading west. Thus when the tower cleared us to land on Runway 27, I checked the gear down and lined up on the runway for a straight-in landing. The more astute readers have probably figured out by now that this was, in reality, west coast Runway 09.

As we approached 1 mile on final, the tower came up with the instruction, "Cleared left downwind now." I couldn't really figure out why he wanted me to turn downwind, but I assumed that the runway was not clear for landing. Asking was out of the question since that would admit mortality.

So we turned left to enter a left downwind for what I thought was the duty runway. Of course this put us on a reciprocal heading with some light plane traffic that was in a right downwind for the real duty runway. Admittedly, a tracking run on a *Cessna 172* isn't a real challenge, but it sure was interesting watching that *Cessna* try to jink.

Finally the tower came up and gave us explicit instructions on what they wanted: turn left to enter a right downwind, circle to land Runway 27. Now it dawned on me what was happening.

If it's possible for a plane to land with its tail tucked between its legs, ours did. At that stage, I felt sure that we'd blow a tire or pull some other stunt that would further impress the locals. Fortunately, we were parked on the Navy side of the field, away from most of the population.

Is it really necessary to say that this trip wasn't conducted very professionally? It really was a poor show, and I was embarrassed. I always stressed professionalism to my students, even in the smallest detail, yet this obviously was a case of "Do as I say, not as I do." You can't maintain credibility as an instructor with that attitude.

But the flights were not a complete loss. It did impress on me the value of the basic techniques that are taught in the training command. Sometimes they appear cumbersome and unnecessary, but in the long run, they are sound, good procedures that have been learned from experience over the years. If we had done a thorough penetration checklist and known the duty runway prior to commencing our TACAN penetration, we probably would have recognized the need for a circling approach and saved ourselves a lot of embarrassment.

I also learned that flight instructors are not immune from DS maneuvers. In fact, they may be very susceptible due to the exalted position they are held in during their daily routine. I recall an article in the FEB '75 APPROACH entitled "Safety and the Flight Instructor." The article touched on this concept, and it is very true.

The flight back was by the book – and a lot more routine. As the twinkling lights of my south Texas Homebase appeared (all 10 of them), it occurred to me that you never stop learning in this business. I had learned a lesson on this trip; maybe I could even learn something from watching my student's S-1 patterns next week. Now if I could only learn to like Mexican food . . . ◄

Airfield Profile No. 4:

Andrews AFB/Naval Air Facility

HAVE orders to the Washington area? Need to visit the Bureau to check on FITREPs or orders? Want to check out "Washington Behind Closed Doors"? Then Andrews AFB/NAF will be your destination. Even though it is located in a high-density TCA, Andrews is surprisingly easy to fly to, given some advance knowledge of the routes in and out and other unique characteristics of this airfield.

The airfield. NAF Washington is a tenant activity located on the East side of Andrews Air Force Base. Being a tenant activity, however, in no way makes the NAF a second-class citizen in terms of transient fueling, servicing, or ground handling. The transient line is open for business 24 hours a day, 7 days a week – no prior permission required – and plenty of ramp space is available. (As always, check FLIP pubs and NOTAM for update information.) The facility has an Intermediate Maintenance Activity and can provide limited maintenance support for a wide variety of aircraft during working hours Monday through Friday. The only limitation the transient line has is a shortage of AME personnel, meaning that LOX is not available on weekends until 1600 Sunday, except in an emergency. Accordingly, aircrews should plan on landing with enough LOX for one leg out of Andrews if they arrive on a weekend, and depart prior to Sunday evening.

With the exception of LOX considerations, there is no reason for Navy aircraft to park on the Air Force side of the field. And there are several reasons not to. VIP movements, for example, shut down operations at the Air Force side of the field while the Navy's mat is unaffected. Also, transient parking at the Air Force side is often a short cross-country away from base Ops, while Navy parking is close enough to Ops for waiting girlfriends to see their pilots arrive.

Having decided to park on the Navy side, it's important to indicate the Navy destination – NSF – on your DD 175 rather than the Air Force side – ADW. This will avoid parking and handling delays, and expedite your arrival. Also, time permitting, Navy Ops likes to get a radio call on pilot-to-dispatcher (PTD) frequency 15 minutes prior to arrival, informing them of your needs. This is particularly important if you are carrying VIPs who need to be met or passengers who will need transportation, or if you have other needs besides gas and chains. The PTD frequency is listed in the IFR Supplement.

Field facilities. Andrews AFB has all the facilities necessary to handle military traffic. The two 9000-foot long runways are oriented north-south, and are the only operable runways. Therefore, if crosswind considerations dictate, aircraft may want to consider nearby Patuxent River NAS. It has a long runway, oriented east-west.

An arrested landing as an alternative to diverting is possible at Andrews, but there are several things you should consider. The arresting gear on 1L and 19R is located in the overrun, so any shortfield arrestment would be on the other runway. As noted in the IFR Supplement, the shortfield arresting gear is for emergency use only and requires 20 minutes notification to rig (the longfield gear is always rigged). Finally, due to the location of Andrews and the high density of traffic, tower may request that you take deferrable emergencies that will foul the runway to an alternate such as Pax River.

Area restrictions. There are no significant terrain threats or manmade obstructions in the Andrews vicinity. There are however, two prohibited areas just to the northwest of Andrews – the White House and Capitol areas. If you sometimes feel that no one notices you in this big, impersonal world, try overflying the White House, and watch the attention you'll get!

Routing in. For the high-altitude fliers reading this, if you don't learn anything else from this article, remember this: *bring along your low-altitude charts!* With few exceptions, clearances into and out of Andrews will include low-altitude fixes and airways. While some of these appear on the high-altitude pubs, not all do. So don't be caught in an embarrassing (or dangerous) situation when you hear yourself cleared "Victor 213, Victor 33 Nottingham, direct Andrews."

Arriving at Andrews, you can expect to be routed toward Nottingham (OTT), a low-altitude VORTAC to the SE of Andrews. Arriving from the south, you can expect clearance to OTT via Richmond or Hopewell; from the west via Brooke; and from the northwest, via Front Royal, V-4 AML. Arriving from the northeast, you can anticipate getting cleared Kenton, V-379, and then Nottingham.

Unless you specifically request a TACAN penetration, you will be given an en route descent and cleared toward OTT according to the above routing – or perhaps direct Andrews, if traffic conditions permit. Once in the radar

Runway 1R. Navy mat is just to the right.

Runway 19R

pattern, there is no problem with multiple approaches other than during the hours 2300-0600, or when the weather is below 2500/5.

Routing out. There are no SIDs, as such, out of Andrews, but there are standard departure routings, depending on your destination. These are all posted on the bulletin board in flight planning. While these appear somewhat foreboding at first glance, in reality the routes are primarily lost comm procedures, and chances are good you will be cleared direct to a primary fix shortly after takeoff. It's a good idea to study the routes, however, because you will probably get them in the clearance, and there is always the chance you will lose comm on the departure. Also, there are some points that appear to be logical departure points that Washington Center will not accept. Front Royal and Westminster are two examples.

For A and F series aircraft, there are only six initial departure points that the computer will authorize: Gordonsville, Richmond, Cofield, Raleigh-Durham, Lucketts (MRB 137/15), and Polla (ADW 067/16). Once again, the complete routings are available in Ops, but it will probably take you longer to copy the clearance than to actually fly the departure.

Miscellaneous considerations:

- There is no 250 KIAS waiver around Andrews. Adhere to this restriction below 10,000 feet.
- The entire airfield is shut down for presidential movements, but these are infrequent.
- Andrews AFB tower/radar is manned by FAA personnel.
- Enter the Navy ramp at night via the north throat since the mat area to the south of the transient parking area is poorly lit.
- There is no weather forecaster on duty at Navy Ops between 2100 and 0600. A tie-in line to Air Force forecasters is available.
- Dense light civilian traffic exists in the vicinity, particularly north and east.
- P-3 aircraft secure outboard engines and use LO-IDLE when entering the Navy ramp.
- If departing to the north with a left-hand turnout, you must start that turn within 1½ miles of the end of the runway for noise abatement purposes.

Personal considerations. There is no need to worry about being bored on a stopover in the DC area. Broke, yes – but bored, no. There is a Navy BOQ and an AF VOQ, but accommodations are always tight. Reservations are a must – if you can get them. If no reservations are to be had, there are two nice motels immediately outside the base. Courtesy busses are available for pickup.

The Andrews Officers' Club is outstanding. It is, however, a membership club that is not open to local nonmembers, regardless of service. Therefore, you must inform management that you are out-of-town transients in order to use the facility. If you have orders of some sort, it's all that much easier.

For the enlisted crewmen in your flight, things are even better. The Navy EDF (Enlisted Dining Facility) and BEQ are excellent. (The EDF is a perennial Ney Award nominee for small messes ashore, while the BEQ won the 1977 Zumwalt award for small BEQs.) Officers can use the EDF.

Navy Ops has limited transportation to get transient aircrews to the west side of the base where most of the facilities are located. Off-base transportation is not available. There is a rental car service at the Air Force terminal, and shuttle busses leave for the Pentagon every hour, during working hours, also from Air Force Ops.

The professional people handling Andrews traffic control and NAF transient services make a trip to this high-density area relatively expeditious and simple. Thorough flight planning, a good lookout doctrine, and careful driving on the way to BUPERS should ensure that any bad news coming out of a cross-country to Andrews will stem from the detailers rather than the flight.

Letters

Fuel Mismanagement Mishaps: Helos vs Jets

USS VALDEZ – Your words of wisdom concerning proper knowledge of the fuel system ("Beware the Fuel System," OCT '77 APPROACH) were enjoyed and appreciated by the pilots of HSL-36 Det 2. However, there does exist a dichotomy between a statement in the article and the table presented on the first page. Applying digital math (more commonly known as counting on fingers and toes) to the table, we find that of 52 incidents noted, 25 belong to the jet community alone, while the prop community accounted for 20 (20 percent less than jets), and helos accounted for only 7 incidents (72 percent less than jets). By combining the latter two communities, a total of 27 incidents exceeds the jet community by only 2 incidents (8 percent more than jets). It is apparently this last rather slender statistical peg upon which you hang the statement that fuel system mismanagement is "more prevalent in prop and helo aircraft." Certainly this statement is true, but why combine these two communities and compare them to the third? According to the statistics, may it not also be said with equal veracity that the jet community accounted for almost half of all fuel mismanagement incidents? The thesis of the article was excellent and certainly not worthy of the construction of a "straw man" which was contradictory to your own statistics.

LT Keith Mulder
HSL-36 Det 2

● We're sorry that this statement was misinterpreted. The comment was not meant as an *overall* summary of fuel mismanagement mishaps. Instead, the sentence in question appeared under the general problem area of "too much confidence in the fuel gage." Thus the comparison of props and helos to jets was applicable *only* in this one category of mishaps. The sole reason the comparison was even made was to alert helo and prop pilots that they would be more susceptible to fuel mismanagement incidents in the area of "too much confidence in the fuel gage" than in the other general problem areas discussed in the article.

Rebirth of the *Velcro* G Suit

Warminster, PA – In line with CDR Johnson's letter (NOV '77 APPROACH) wherein he states that the Fleet did indeed prefer the *Velcro* G suit with its attendant problems, I have received numerous calls from other aviators who support his claim. Some further facts on the CSU-15/P are therefore warranted.

The ASO (Aviation Supply Office) has initiated procurement of the CSU-15/P which incorporates all the features deemed desirable by the Fleet (soft hose, *Nomex* outer cover, etc.) except the *Velcro* attachment feature. Due to the seeming widespread feeling that the *Velcro* is standing up to Fleet use, attempts are being started now at NADC to reopen the *Velcro* program. If it is successful (funding obtained), then a configuration change to the CSU-15/P will be provided to the Fleet. The paperwork mill has to be restarted, however, and it will take some time. There is a means by which the Fleet can keep the issue alive and vital. There is a meeting held biannually at NADC called the Integrated Logistic Support/Acquisition Management panel at which representatives of *all* type commands, CNO, NAVAIR, ASO, and NADC sit down and discuss priorities and solutions to Fleet personal equipment problems. Fleet inputs to the various command representatives will ensure that these items of high interest to the Fleet will receive attention at the proper levels. I have a listing of all type command representatives and will be happy to place anyone in contact with this particular rep's office. Information as to the results of previous meetings can be officially obtained through these various representatives. NADC is not allowed to promulgate the information to levels less than the type command.

I sincerely appreciate the calls I have received and am solicitous of others. Due to the nature of the CSU-15/P problem, I have only heard one side of the Fleet's opinion. If there are opposing ideas, then I need to hear those voices also, and soon. My Autovon number is 441-2847. In the interval, I feel a good start has been made, and maybe we can keep it going.

LCDR John A. Van Devender
Naval Air Development Center

Expansion of NATOPS Is Not the Answer

NAS Jacksonville, FL – Reading the NATOPS articles by CAPT Sullivan and LT Parra in the SEP '77 APPROACH provided an opportunity to reflect on the scope and goals of the NATOPS program. I did get further confirmation of a growing misbelief that NATOPS is the cure-all for all operational and safety problems. It cannot be argued that far too many aviation mishaps occur each year because an aviator attempts a mission or maneuver beyond his

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request. Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, VA 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

level of competency. The problem facing all of us in naval aviation is how to identify and correct these tendencies.

I tend to disagree with CAPT Sullivan's statement that no systems exist to evaluate aircrew ability to perform specific missions. No system, including a NATOPS program, will ever completely alleviate poor headwork – the real culprit behind aircrew-caused mishaps. However, we do have some systems (or programs) to identify and correct aircrew deficiencies. NATOPS does assess adherence to standardized procedures and must be an ongoing program. The NATOPS officer not only flies yearly checkflights but is continuously observing operations to identify personnel who tend to disregard or abbreviate established procedures. Additionally, the operations officer and training officer should be monitoring the training program to ensure personnel have received the proper training and are qualified for their scheduled missions. And where are the aircraft commanders, flight leaders, LSOs, etc? They should be a source of feedback to the CO or the Ops officer on personnel who lack proficiency or tend to overextend their capabilities. Last, but certainly not least, the safety officer is tasked with monitoring all squadron operations for unsafe practices or trends. These are but a few of the "systems" of checks and rechecks which combine to safely achieve a squadron's operational readiness. If one of these "systems" fails to adequately monitor its area of responsibility, there is room for an aircrew-caused mishap to occur.

Expansion of the NATOPS program is not the answer to lowering the amount of aircrew-caused mishaps. NATOPS is and should be a user-oriented program charged with developing and maintaining standardized procedures for the operation of naval aircraft. The tasks of evaluating and controlling the proficiency of aircrew as well as the employment of aircrews are properly left to the other systems in a squadron.

LT M. M. Staley
HS-1

A-6 Fuel Master Design Problems

NAS Whidbey Island, WA – As pilot NATOPS officer in VA-128, I rose about 2 feet out of my chair when I read your article titled "Minor Emergency, Major Mistake" (NOV '77 APPROACH). This occurred when reading "... the present design [of the A-6 engine fuel master switches] has been wholly satisfactory throughout the A-6's operational history and presents no hazard when proper emergency procedures are performed thoughtfully and deliberately." It is apparent that the endorser did not solicit any comments from Fleet operators.

The location of the engine fuel masters *is* a problem. Just because aircrews have been successfully avoiding this hazard does not mean the hazard fails to exist. With the A-6 now being extended into the 1990s, the chances of another aircraft being lost for inadvertent securing of the engine fuel masters are high. At 12 million dollars plus, it seems to me that something could be done to avoid this "accident waiting to happen."

This hazard has been known and was identified a long time ago. Mr. Robert Heva, a Weapons Systems Trainer operator, identified the existence of the problem based on his observations during training periods. As he phrased it in the Benny Sugg he submitted: "While giving numerous emergency procedures hops to A-6 pilots, a significant number have cycled the engine master switches off and then back on instead of the generator switches." He recommended that a new type of engine fuel master guard be installed.

The recommendation was routed to VA-128 for further investigation, and VA-128 agreed that a potential problem does exist. All this happened before February 1974 – more than 3 years before this accident.

During informal discussions with the WST operators/instructors, two important facts came to light:

1. A-6 experience levels had little to do with the probability of inadvertently securing engines with the engine fuel masters. However, pilots that lacked recent A-6 experience appeared most prone.

2. Of the pilots who had inadvertently secured engine fuel masters, many adamantly refused to believe they had done so. They were convinced the WST operator had given them a flameout.

Informal discussion with the pilot of this accident indicated that it was days before he began to realize and could be convinced that he had secured the engine fuel master switches instead of the generator switches.

The location problem of the engine fuel master and generator switches is encountered more often than one may suppose. For example, generator losses are not uncommon in the A-6. With the loss of one generator at night, all console lights are lost. To reset the generator, the pilot must feel for the proper switch, glove on, while continuing to scan his flight instruments. The switch is normally grasped on the sides with the first finger and thumb, rendering the guard on the engine fuel master switch (located about 1½ inches directly behind the generator switch) totally ineffective.

Suggestions for eliminating the problem have been to install a different type of guard, rotate the switches 90 or 180 degrees, or relocate the switches. It appears that some suitable solution could be devised at less cost than another A-6.

LT R. P. Mannel
VA-128

APPROACH Article at College

Houston, TX – Richard Shipman's article "Don't Embarrass the Command" in the DEC '77 APPROACH was outstanding. As an ex-aircraft handler and assistant air boss, I can recall similar situations.

You may be interested in a somewhat different approach (no pun) I've taken with the article. As part of the Naval Science Course in leadership and management that I teach here at Rice University, I assigned a take-home test based on the article. As I pointed out to the students, although the article is concerned with naval aviation, the basic questions and problems raised in the article are not. I asked my students to critically discuss the article with regard to values, communication, motivation and professionalism, and how leadership impinges on each of these four factors, which are of course interrelated. I did have to attach a list of explanatory notes to explain the Navy terminology and jargon!

CDR Barton B. Williams, USN
Rice University NROTC Unit

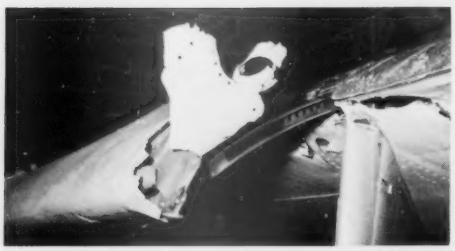
Vol. 23 No. 8 NAVAIR 00-75-510

approach

32

CONTENTS

DEPARTMENTS



Pg. 1

Pg. 8

Pg. 18

A Naval Safety Center Publication

Our product is safety, our process is education, and our profit is measured in the preservation of lives and equipment and increased mission readiness.

PURPOSES AND POLICIES/APPROACH presents the most accurate information currently available on the subject of aviation accident prevention. Contents should not be considered as regulations, orders, or directives and may not be construed as incriminating under Art. 31, UCMJ. Photographs used to illustrate articles in APPROACH do not necessarily reflect the actual aircraft, air stations, ships, and individuals that are described in the text.

PHOTOS/Official Navy or as credited. Non-naval activities are requested to contact NAVSAFECEN prior to reprinting APPROACH material.

CORRESPONDENCE/Contributions are welcome. The right to make editorial changes to improve the material without altering the intended meaning is reserved. Reference to commercial products does not imply Navy endorsement. Views of guest-written articles are not necessarily those of NAVSAFECEN.

DISTRIBUTION/Requests for distribution changes should be directed to NAVSAFECEN, NAS Norfolk, VA 23511, Attn: Safety Publications Department. Phone: Area Code 804, 444-1321.

PRINTING/Issuance of this periodical approved in accordance with Department of the Navy Publications and Printing Regulations, NAVEXOS P-35. Library of Congress Catalog No. 57 60020.

CREDITS/Cover painting is the Grumman A-6 *Intruder,* the Navy's only true all-weather attack aircraft. Courtesy of Grumman Aircraft Corporation and artist Craig Kavafes. Pg. 5 Photo: PH3 Paula V. Boynton; Pg. 29 Photos courtesy USAF MAC/DOTF.

☆U. S. GOVERNMENT PRINTING OFFICE: 1978—735-047/20

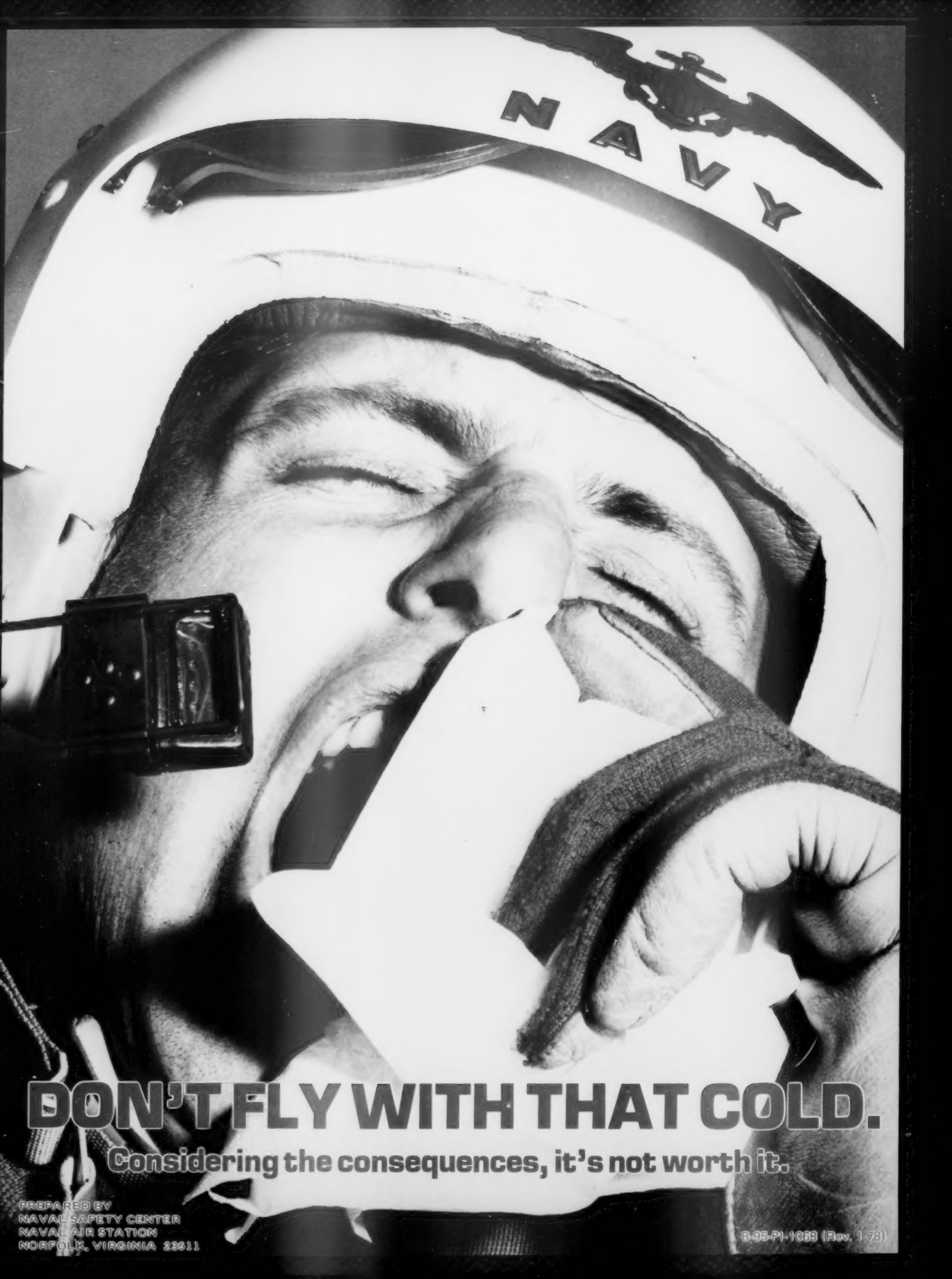
SAFETY

is a word everyone knows, but seems to forget until there is an accident.

How's your memory?

B48-TR-178

PREPARED BY
NAVAL SAFETY CENTER
NAVAL AIR STATION
NORFOLK, VIRGINIA 23511



DON'T FLY WITH THAT COLD.

Considering the consequences, it's not worth it.

PREPARED BY
NAVAL SAFETY CENTER
NAVAL AIR STATION
NORFOLK, VIRGINIA 23511

3-95-P1-1083 (Rev. 1-78)